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Original Articles.

A CRITICAL DISCUSSION OF SUGAR IN ITS RELATION TO INFANT FEEDING.

BY LEWIS WEBB HILL, M.D., BOSTON,
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SYNOPSIS.

Introduction.

I. Physiology.

- Necessity of Sugar to Life.
- Relation of Sugar to Weight and to Retention of Nitrogen and Salts.
- Digestion and Absorption.
- Normal Action of Sugar in the Intestine.
- Assimilation Limits of Different Sugars.

II. Pathology.

- Chemistry of Sugar Fermentation.
- Conditions which Bring About Sugar Fermentation.
 - A. Bacteria introduced from without in bad milk.
 - B. Normal inhabitants of the intestine.
 - (1) Overfeeding with sugar.
 - (2) High sugar plus high salts.
 - (3) Overheating of the body.
 - (4) "Parenteral" infections.
 - (5) Nervous exhaustion or excitement.
 - (6) Constitutional weakness.
- Clinical Appearances of Mild and of Severe Sugar Fermentation.
- Chemistry of Mild and of Severe Cases.

III. Therapy.

- What Sugar to Feed to Normal and Abnormal Babies.
- Amount to Use.
- Calculation of Sugar, etc.
- Maltose-Dextrins Preparations.

Treatment of Mild and of Severe Cases of Sugar Fermentation.

- (1) Emptying the intestine.
- (2) Food.
- (3) Water.
- (4) Alkali.
- (5) Intestinal irrigations.
- (6) Drugs.

Up to a few years ago the sugar in milk modifications attracted comparatively little attention. It was known that it was a necessary part of the diet, that it furnished calories for the fuel needs of the baby's body, and that, under certain conditions it might cause disturbances of digestion; but in comparison with the other food elements, protein and fat, it was looked upon as relatively harmless. At that time the protein was considered the harmful element, and most of the efforts in modifying milk were concerned with making it easy of digestion. It is natural that this should have been so, inasmuch as perhaps the most striking difference between human and cows' milk is the relatively large amount of protein in the latter. In the last few years the pendulum has swung the other way, largely owing to the influence of Finkelstein and his pupils, who go so far as to teach that sugar is the cause of practically all the digestive and nutritional disturbances of infancy, that fat may cause trouble secondarily, and that protein practically never does any harm. It is unquestionably true that most of Finkelstein's conceptions have been of

great value, and that his work has made an epoch in the science of infant feeding. It is also true that many experienced pediatricians, in the Eastern part of this country, particularly, do not entirely accept his ideas, nor attach so much importance to sugar as a cause of nutritional disorders as he does. It is the purpose of this paper to consider sugar in its relation to the physiology, pathology, and therapeutics of infant feeding, and to attempt to offer a conception of sugar which may, perhaps, help to harmonize certain of the differences between the various methods of infant feeding.

I. PHYSIOLOGY.

Necessity of Sugar. Sugar is necessary to life. A baby may be fed for a long time on a fat-free diet, provided the caloric value of its food and its nitrogen requirement is maintained by adding suitable amounts of the other food elements; but if he is put upon a sugar-free diet, and kept on it for any length of time, he dies from the development of acidosis. Acidosis is produced in this manner in infants much more readily than it is in adults. Therefore, at the outset, let us say that a baby must have in its diet a reasonable amount of sugar (or carbohydrate in some form) if it is to thrive. The exact minimum of sugar necessary for babies of different weights and ages is not known. Sugar is also of great importance as a nitrogen sparer, and seems to have more power in this regard than does an isodynamic amount of fat. When carbohydrate (sugar) is given in the diet it is possible to establish nitrogen equilibrium at a much lower level than when protein alone or when protein and fat alone are ingested. Thomas¹ showed that a diet containing the large amount of 18.4 gm. nitrogen did not suffice to keep the adult body in nitrogen equilibrium when no carbohydrate was given. The reason for this is that the protein food is drawn upon so heavily for fuel in the body that not enough is left for the needs of growth and repair. This holds even more for infants than it does for adults, as the nitrogen needs of infants per kilogram of body weight are considerably greater than those of older persons. The importance of sugar for fuel is shown in breast milk, of which 48.7% of the calories are furnished by the sugar.

Relation of Sugar to Weight and to the Retention of Nitrogen and Salts. The feeding of

large amounts of sugar may cause a rapid increase in weight, provided the sugar is well digested. This is partly due to water retention, and high sugar feeding is particularly likely to bring this about because the deposition of glycogen in the body cells, which may be considerable after high sugar feeding, is possible only when accompanied by a retention of two or three times the amount of water. The considerable salt retention with high sugar feeding may also account for a part of the water retention. Thus we see many babies who have been fed on a one-sided high sugar diet, who appear fat, and are perhaps above normal weight. The apparent robust health and weight in these cases is deceptive, because it does not consist of healthy fat and muscle, but of water which has been retained in the body cells. Condensed milk babies are likely to be of this type.

Sugar is not without a good deal of influence upon the retention of the other food elements; up to a certain point, the more sugar that is fed, the greater is the retention of nitrogen and salts, particularly of nitrogen. If the tolerance for sugar is overstepped, and fermentation results, the retention of nitrogen, and especially of salts, may be greatly diminished.

Digestion and Absorption. The sugars used in infant feeding—lactose, sucrose, and dextrin-maltose preparations,—are polysaccharides of complex formula, and must undergo splitting in the intestinal tract before being absorbed. It is probable that sugar is normally acted upon very little in the stomach. It is broken down in the small intestine by the intestinal ferments into two molecules of a monosaccharide, or simpler sugar, and is absorbed as such. The absorption of sugar in health is excellent, and most investigators have been unable to find sugar in the stools of normal babies. Those who have found it have found only very small amounts. In cases where the baby is not absorbing sugar well, it is broken down into acid end-products, by bacterial action, and thus, even in sugar indigestion, it is not usual to find sugar in the stools.

Normal Action of Sugar in the Intestine. The stools of a breast-fed baby are normally quite strongly acid in reaction, due to the large amount of sugar and fat in breast milk. There is always normally a certain amount of sugar fermentation going on in the intestine of a breast-fed baby, caused by the normal

bifidus and acidophilus acid-producing flora, which does not appear without sugar. Normally, in the breast-fed baby's intestine there is fermentation going on; normally, in the bottle-fed baby's intestine, putrefaction is likely to exist, on account of the relatively large amount of protein in most cows' milk modifications. This calls forth a different sort of intestinal flora from that of the breast-fed baby, and we do not see the pure acidophilus and bifidus flora that we do in the former. In the bottle-fed baby there is hardly any normal standard of stool acidity or of intestinal flora to go by, as the intestinal processes depend so much upon variations in the food supply, but stools of the same acidity as those normal for the breast baby would be quite abnormal for the bottle baby, and would be due to pathological, and not physiological, fermentative processes. The reason that a breast baby can stand such high acidity of the stools is that the fermentation is going on in the large intestine, and the peristalsis and digestive functions of the small intestine are, therefore, not interfered with. In the bottle-fed baby with very acid stools, or in the breast baby with excessive sugar fermentation, there is an increased bacterial content of the small intestine from various causes, favoring abnormal fermentation there. An important point to remember is that there are always two antagonistic processes going on in the bottle-fed baby's intestine: breaking down of protein, which tends to cause an alkaline reaction in the intestine, partly from the alkaline end-products that are formed, partly from the large amount of alkaline pancreatic juice which is thrown into the intestine in order to digest the protein. The opposite process consists in a breaking down of sugar and, secondarily, of fat, with acid end-products. In a normal bottle baby, whose food is agreeing with him, these two processes just about balance one another; if one greatly predominates, trouble results, due to a too acid or too alkaline reaction in the intestine. The processes of digestion and of absorption are very delicately adjusted with regard to the intestinal reaction, and must have a certain optimum reaction in order to proceed efficiently; comparatively slight changes in acidity or alkalinity may serve to upset these carefully adjusted processes. The breaking down of protein is caused by one group of bacteria, that of

sugar by another group, and the bacteriology of the intestine, and thus the reaction, can be very largely controlled by the type of food offered. A food high in protein will call forth groups of bacteria that live upon protein, and hence an alkaline intestine; a food high in sugar will call forth bacteria that live upon sugar, hence an acid intestine. We cannot separate bacteriology and problems of digestion and absorption: bacteria *always* play an important rôle in the interaction between the various food elements in the intestine. The pediatrician can control the type of stools, and make the intestine acid or alkaline at will, according to the type of food he offers to the baby, according to the amounts of the food elements in his mixture, and most particularly according to the *relation* between these food elements. It is vital for the baby to have a well-balanced food, and no one element can be considered apart from its relation to the other food elements.

These principles are, I believe, of great importance in practical feeding.

Assimilation Limit of Different Sugars. A baby takes relatively much more sugar than does an adult, and the assimilation limit is much higher in infancy than it is in later life. A breast-fed baby of 4 kgm.² would take, perhaps, 120 gm. of milk at a feeding, containing, roughly, 8.4 gm. of lactose, or 2.1 gm. per kgm. body weight. An adult usually shows sugar in the urine after taking about 1 gm. sugar per kgm. body weight. Practically speaking, it is difficult to exceed the assimilation limit of a baby before sugar fermentation and diarrhea occur. The assimilation limits of the different sugars vary somewhat, that of lactose and sucrose being about the same, from 3.1 to 3.6 gm. per kgm. body weight, that of maltose considerably higher, about 7 gm.

II. PATHOLOGY.

Chemistry of Sugar Fermentation. It is now generally granted that bacterial fermentation of sugar in the intestine plays a very important part in digestive and nutritional disturbances. A number of different agencies may bring this about, but the end-result is the same: excess of acid from the breaking down of the sugar, with consequent irritation of the intestinal mucous membrane. The production of acid is the first step in the chain of pro-

esses which may occur, and which may produce mild or severe conditions in the baby, depending upon how far they are allowed to go. I believe it is fair to say that the unchanged sugar molecule is without influence, and that it must be broken down into volatile acids before harmful results are brought about. This breaking down is done by the action of bacteria upon sugar, and the probability is that it cannot be done in any other way.

Let us consider for a moment the chemistry of sugar fermentation, and the products that are formed. Lactose is a polysaccharide, a rather complex chemical substance, with the formula $C_{12}H_{22}O_{11}$, containing many carboxyl and some aldehyde groups which may be very readily changed over into acid radicals. It will be seen from this that there is possibility for the formation of a considerable number of end-products when the molecule is torn apart, and that from the chemical constitution of sugar acids are the substances which are most likely to be formed. Two different groups of acids may result from the breaking down of sugar: the so-called volatile "fatty" acids and the non-volatile acids. The non-volatile acids are lactic and succinic acids and probably do no harm. It is the volatile fatty acids with which we are concerned. There are thirteen members in this acid series, as follows:

NAME*	FORMULA
Formic acid	$H\ COO\ H$
Acetic	$CH_3COO\ H$
Propionic	$C_3H_7O_2$
Butyric	$C_4H_9O_2$
Valeric	$C_5H_{11}O_2$
Caproic	$C_6H_{13}O_2$
Heptylic	$C_7H_{15}O_2$
Caprylic	$C_8H_{17}O_2$
Nonyllic	$C_9H_{19}O_2$
Capric	$C_{10}H_{21}O_2$
Palmitic	$C_{16}H_{33}O_2$
Margaric	$C_{17}H_{35}O_2$
Stearic	$C_{18}H_{37}O_2$

* Text-book of Organic Chemistry, Holleman.

The lower members are liquids; the higher ones, beginning with C_{10} , are solids at ordinary temperature. It is the lower members of the group which are most important, and it is unlikely that the higher ones are formed by the breaking down of sugar. The higher acids are formed by the breaking down of fat, and it is also theoretically possible that the lower acids (formic, acetic) may be likewise formed from fat destruction. Probably always when there is a fermentation of sugar going on in

the intestine, there is also a secondary fermentation of fat, and it is quite impossible to tell how much of the acid formed comes from the one, how much from the other. The modern German school is inclined to attach very little importance to fat fermentation: they believe that it is practically always secondary to sugar fermentation, and does little harm. Salge, in his important monograph in 1906, believed, however, that *all* the trouble came from the fat, and none from the sugar. Chemically, both substances can form acids very easily, and it is probable that in many cases the sugar and the fat *both* play an important part.

Bokai³ found that the acids were irritating to the intestine in the following order: caprylic, capronic, acetic, propionic, formic, butyric, valeric. Bahrdr and Bamberg⁴ believe that acetic is the most irritating. Increased amounts of volatile fatty acids in the intestine may bring about the following harmful changes:

1. Increase peristalsis by irritating the intestine, with diarrheal stools as a result; these loose stools may carry out a good deal of undigested fat and protein which have not had time for absorption.

2. Injure the mucous membrane of the small intestine in such a way that it is unable to exert its normal anti-bacterial powers. Also, the functionally injured mucous membrane may allow the passage of harmful substances (lactose?, salts, acids, or bacterial endotoxins) into the system, which would not be able to pass the healthy intestine. This may lead to severe intoxication.

3. Draw upon the alkali reserve of the body in an attempt to neutralize the excessive acidity. This may help to cause an acidosis.

4. Upset the normal chemical processes of digestion, most of which cannot go on satisfactorily in an excessively acid intestine.

CONDITIONS WHICH MAY BRING ABOUT SUGAR FERMENTATION.

Two things are necessary for sugar fermentation: undigested sugar free in the intestine, and bacteria in sufficient quantity to attack it. It must be remembered that there is no specific bacterium which accomplishes this: it may be done by a number of different organisms, either the normal inhabitants of the intestine, or harmful organisms introduced from without. The place of fermentation is of a good

deal of importance. The small intestine is relatively sterile, partly from the antiseptic action of the hydrochloric acid of the stomach (upper portion), partly from the antibacterial action of the intestinal juices, and partly from the antibacterial action of the intestinal epithelial cells. The large intestine, on the other hand, is swarming with bacteria, and any conditions which allow these to migrate to the small intestine and flourish there favor sugar fermentation. In the breast-fed baby, sugar fermentation usually means simply that a certain portion of the large amount of sugar in breast milk has passed on undigested to the large intestine, and the acid reaction which is caused there by its fermentation is a physiological condition, which promotes proper peristalsis and evacuation of the bowel. In many bottle-fed babies with moderately acid stools such is also likely to be the case, but in the majority of bottle babies with loose acid stools the fermentation is proceeding in the small intestine, and is abnormal. A difficult problem in artificial feeding is to keep down excessive intestinal putrefaction with the formation of constipated alkaline calcium soap stools, without going to the extreme of excessive acid sugar fermentation. These two conditions are largely controlled by the relation between the different food elements in the mixture offered to the baby.

A. BACTERIA INTRODUCED FROM WITHOUT IN BAD MILK.

It is a well-known clinical fact that most cases of fermentative diarrhea are seen in the summer months, when milk has a greater chance to spoil than in the cold weather, and in babies who do not receive the best milk supply. I believe that more cases of fermentative diarrhea are caused in this way than in any other. The German school, however, considers this cause relatively unimportant, which is, perhaps, explained by the fact that they always feed their babies on a practically sterile, boiled milk. One of the greatest problems before pediatricians always has been to strive for the production of clean milk, and the causal relationship between so-called "summer diarrhea" and bacterial infection of milk was recognized long before any such thing as sugar fermentation was heard of. Different authors have described different specific bacteria which cause

the trouble, but I believe it probable that almost any bacterium when present in sufficient quantity in the milk may bring it about. It is probable that spoiled milk plus heat is more likely to cause trouble for the baby than is spoiled milk alone. Bahr^{dt} and his co-workers investigated the following question: "Is the number and kind of bacteria in the stomach and intestine, as well as the number and kinds of fatty acids formed, dependent upon the bacterial infection of milk before ingestion"? They fed dogs on milk infected with many different sorts of bacteria, killed the dogs two hours after feeding, examined the stomach and intestinal contents, and found, that in spite of the large intake of bacteria, there was not a large bacterial increase in the stomach and intestinal contents, due, they believed, to the strong anti-bacterial powers of the normal stomach and small intestine. They conclude that milk infection is not a very great factor in the common (non-epidemic) diarrheas of children, and believe that the influence of food infection, plus heat and over-feeding is necessary to cause trouble in most cases. Such investigations as these are, of course, very artificial, and, while valuable, are by no means conclusive.

B. CONDITIONS UNDER WHICH THE NORMAL BACTERIA OF THE INTESTINE MAY CAUSE SUGAR FERMENTATION.

1. *Overfeeding.* Overfeeding with sugar, either given as too much food as a whole or as a too high sugar percentage, may cause fermentation. The excess of sugar cannot be absorbed before the intestinal bacteria attack it. Part of the sugar is probably fermented in the small intestine; part in the large, and oftentimes such a condition may be quickly relieved by simply cutting down the amount of sugar in the diet. This is the simplest condition of sugar fermentation and depends alone upon the excess sugar that is present and the bacteria, without the salts, spoiled milk, or heat, entering into the question at all. The next five types of sugar fermentation depend fundamentally upon changed processes in the small intestine; either a diminished anti-bacterial power, or a diminished secretion of digestive juices, from several causes.

2. *High Sugar in Combination with High Salts.* The German school has contended that perhaps the most important cause of sugar

fermentation is a depression of the anti-bacterial powers of the epithelial cells of the small intestine by the salts of the cow's milk—particularly those salts which are left behind in the whey after the curd has formed. This lowering of resistance allows bacteria to flourish in the small intestine, where they would not normally. We know that the small intestine does have considerable anti-bacterial power; whether this is dependent upon some peculiar property of the epithelial cells, or whether it depends upon the intestinal juices, is not certain. The importance that the German school ascribes to the whey salts is based largely upon Meyer's classical investigation, in which he separated breast milk and cows' milk each into curds and whey, and then added the whey of breast milk to the curds of cows' milk, and vice versa. He found that the mixture containing the cows' whey caused diarrhea when fed in conjunction with a high sugar; those containing the whey of breast milk did not.

There is no question but that cows' whey is rich in salts. It contains about .80 to .90% salts, in the form of the chlorides, citrates and phosphates of sodium, potassium and calcium. About half of the calcium of the original milk is present in the whey, probably nearly all of the sodium and potassium.^c There is a certain amount of evidence to show that strong solutions of salts may depress the functions of living cells, but the salt concentration of cow's whey, although higher than that of human whey, corresponds to a physiological saline solution only. It is hard to see how a concentration of salts which is thus practically isotonic with the body fluids, can act in an injurious manner to the intestinal cells. Again, we know that plain whey, undiluted, is usually borne very well by even the smallest babies, and often is fed to them with great success during gastro-intestinal disturbances of various sorts, when the casein and fat of cow's milk, perhaps, cannot be borne at all. Also when we add sodium citrate in the strength of one or two grains to the ounce of milk and cream in the mixture, to modifications to favor the digestion of the protein, we are adding a large amount of sodium and of citrate ions, which does not seem to upset the baby. Again, when we add calcium chloride to a baby's milk in order to lessen nervous irritability in spasmodia, we add much more than is ever present

in whey. Neither does this ordinarily upset the baby.

One of the chief purposes of the famous "eiweiss milk" was to dilute the whey salts, but in eiweiss milk we have all the salts of the buttermilk used in its preparation, which, in the finished eiweiss milk would correspond approximately to a salt concentration obtained by dilution of cow's milk one-half with water. "Eiweiss" milk works; there is no question of that; but may not its beneficial effect be due rather to a very low sugar content (1.5%) than to a low salt content, which it does not contain? Let us suppose a baby was having dyspepsia on a dilution of one-half milk with added sugar; we would feed him eiweiss milk, and it would probably arrest the sugar fermentation, but we would not have decreased the salt content of his food at all.

The work of Courtney and Fales,⁷ under the direction of Dr. Holt, is interesting in this connection.

"Protein milk contains a higher ash, and higher amount of all the different salts than are ordinarily given to infants artificially fed. As compared with woman's milk, not only are the total salts of the ash in great excess, but the amount of calcium is nearly five times and the phosphorus nearly seven times as great. The soluble salts, also, are nearly twice as abundant in protein milk as in human milk. As used at the Babies' Hospital extensively for three years with most satisfactory results, eiweiss milk has contained, owing to the addition of sodium chloride to the buttermilk used, an amount of Na and Cl nearly as great as in undiluted cow's milk, and much greater than in woman's milk. The following table shows the salt content in percentages of protein, cow, and human milk."

	TOTAL ASH	Ca O	Mg O	P ₂ O ₅	K ₂ O	Na ₂ O	Cl
Protein	.648	.201	.021	.222	.109	.032	.061
Cow	.743	.176	.020	.206	.189	.050	.111
Human	.206	.047	.008	.034	.057	.014	.035

It can be seen from these few suggestions, that the question of the harmfulness of the whey salts is not at all a clear one, and that Meyer's original suppositions can be by no means unconditionally accepted. There is no question but that breast milk, even with its high sugar content, can often be fed with beneficial results to babies who are suffering from sugar fermentation. Sugar fermentation must, therefore, be due in these cases to

sugar plus some indeterminate factor, present in cow's milk, and not present in breast milk. There is evidently some property of breast milk which allows its high sugar content to be handled by the baby without undue fermentation; whether this is due to the relatively low salt content of breast milk, or to other factors, is not certain.

3. *Overheating of the Baby's Body.* Overheating is of great importance in bringing about sugar fermentation. It is generally recognized that in adults not so much food can be tolerated in very hot as in colder weather, and the same applies to babies. Meadowikow's^s researches are of interest in this connection. He found that with dogs kept in a hot room there was a very greatly increased bacterial growth in the small intestine, and actually found bacteria in various organs at autopsy, where they were not found in control dogs. Besides diminishing the anti-bacterial powers of the intestine, he believes that heat may so depress the vitality of the intestinal epithelial cells that bacteria may actually pass through them into the tissues. It is also likely that the digestive juices of the intestine under the influence of heat are decreased in amount and in functional powers, so that not as large quantities of sugar can be digested as under normal conditions. What is undigested ferments readily.

It is hard to separate the influence of heat from other influences, but all clinical writers are agreed that excessive heat, particularly caused by overclothing in the hot weather, is a very important cause of sugar fermentation.

4. *"Parenteral" Infections.* Infections of various sorts in other parts of the body than the digestive tract are important as a cause of sugar fermentation. This has been noticed by American pediatricians for years, but has received much more attention from German writers than it has from those in this country, and it is my belief that followers of the German school are, perhaps, too prone to ascribe sugar fermentation to "parenteral" infection, as it is called. There is no question, however, but that many babies with otitis media, nasopharyngitis, etc., will show evidences of sugar indigestion by loose, green, acid movements, when their movements previous to the onset of infection may have been quite normal. This is an important group of cases, and I believe

that many of us in this country have gone to the other extreme, and have not realized how important and how frequent this cause of sugar fermentation is. Clinically, the diarrhea is usually not severe, and the baby is likely to have merely six or seven loose, greenish, acid stools a day, without evidences of prostration or toxemia. The explanation is probably that in any infection the digestive juices are partly suppressed, so that undigested sugar can proceed lower than is normal down the digestive tract, where the ever ready bacteria there attack it; or again, that suppression of the anti-bacterial powers of the small intestine from the general lowering of vitality may allow these same bacteria to flourish higher in the gut than they normally would.

5. *Nervous Influences.* Nervous exhaustion and excitement may also bring about sugar fermentation by suppressing the secretion of the intestinal juices, and possibly by increasing intestinal peristalsis, in which case time is not given for the proper digestion of the sugar in the small intestine, and it proceeds to the large intestine, where it ferments. This is a relatively mild and unimportant form of sugar fermentation.

6. *Constitutional Weakness.* As a last and important cause of sugar fermentation, constitutional weakness of the baby is to be considered. In these cases the tolerance is likely to be weak for every food element. The anti-bacterial forces of the small intestine are not powerful enough to keep down bacterial growth the way they should, and bacteria flourish where they normally should not. The functions of the intestinal epithelium are easily disturbed by forces which would have no influence upon a more vigorous child. The sugar-digesting juices are also deficient, and with the abnormal bacterial growth and poor digestive power of the intestine, ideal conditions for sugar fermentation are at hand. This group of cases comprises those babies whom we are accustomed to class under the head of chronic sugar indigestion rather than as acute. Any overstepping of their rather meager tolerance is practically sure to result in a sugar diarrhea.

CLINICAL APPEARANCES OF MILD AND OF SEVERE CASES OF SUGAR FERMENTATION.

The mild and the severe cases of sugar fermentation we are accustomed to call "mild"

or "severe" cases of fermental diarrhea, or of indigestion with fermentation. The Germans call the mild cases "dyspepsia," the severe ones "intoxication."

The clinical appearance of the mild and of the severe cases is considerably different.

Mild Cases. The baby has usually from four to ten loose, green, acid stools a day. His appetite is impaired, he is fussy and restless, and is obviously moderately but not severely sick. The temperature is slightly elevated, usually 99° to 100.5°. The respiration is of normal character, the tissues are still firm and hard, and there is either stationary weight, or perhaps a slight loss. The outlook is good, and the baby will in most cases respond readily in a few days to proper treatment.

Severe Cases. The severe cases present a quite different picture, which has been very well described by Dr. Gerstley of Chicago.

"The child is very feverish and lies in semistupor. The sunken cheeks, the sharp nose, the ashen, mud-colored, wrinkled skin, the cold extremities—all show great loss of weight and prostration. Intense watery diarrhea drains the body of its food, pulls out the very building-blocks of the tissues. The pulse is rapid and weak. Lying apathetically, the baby takes not a particle of interest in his surroundings. The unclosed lids show the glassy eyes fixed unintelligently upon a corner of the room. Occasionally he wakes for a moment, looks at us, cries fretfully, and wanders off into apathy. The breathing is characteristic; deep and sighing, like the air hunger of diabetic coma. Occasionally one of the limp extremities moves slightly; sometimes it takes a cataleptic attitude. The urine may show sugar, albumin and casts."

Metabolism. The metabolism in the two groups of cases is quite different. In the mild cases the disturbance is a local intestinal affair and, practically speaking, its influences do not extend beyond the digestive tract. The sugar in the intestine is fermented by bacteria, and the resulting acid end-products irritate the intestinal mucous membrane and cause a diarrhea. The chemical processes in the intestine are considerably changed, but there is no profound and far-reaching change in the chemistry of the whole body, as there is in the more severe cases. There is a moderately diminished absorption of all the food

elements, partly due to increased peristalsis, partly to the altered chemistry of the intestine. The absorption of ash is particularly poor, although the diminished absorption of nitrogen and of some of the ash constituents seems to be partly compensated for by a somewhat increased retention.⁹

There is probably very little absorption of injurious products into the general circulation, and the metabolism of the baby as a whole is not seriously affected. The intestinal mucous membrane is irritated, but is still functionally efficient enough to prevent toxic substances from being absorbed through it. The stools are so acid that considerably more of the alkali excreted from the body goes out in the stool than normally, but not enough alkali is withdrawn to cause severe acidosis. In the severe cases (intoxication) the situation is quite different. The process which has started locally in the intestine, has spread its effects all through the body, so that the chemistry of the baby's body cells is completely upset. In the beginning, the sugar is fermented, and acids are formed as in the mild cases, but the process continues so long or with such a degree of intensity that the intestinal mucous membrane is severely injured, not anatomically, but functionally, and allows substances to pass through into the general circulation, which it would never allow under normal conditions.

All investigators are agreed up to this point: that the acids formed depress the function of the intestinal epithelial cells in such a way that toxic substances are allowed to pass into the circulation. But there has been considerable disagreement as to what the nature of these substances or substance is.

Five things may be considered:

1. Lactose.
2. Salts.
3. Food decomposition products.
4. Bacteria.
5. Bacterial decomposition products (endotoxins).

1. Lactose.

Finkelstein originally believed that lactose unchanged was the toxic agent. This view originated because it was noted that in nearly all cases of "intoxication," sugar was found in the urine.

Meyer¹⁰ found sugar in the urine in every urine of 150 cases of intoxication, and regarded

it as one of the earliest symptoms of the toxic state. The sugar was lactose, and was usually in a concentration of about 1%. The specific toxic effect of lactose is denied now by Finkelstein himself, as well as by other observers (see Allen: "Glycosuria," etc.), and the lactosuria is looked upon as a symptom of the toxic state rather than the cause of it.

2. Salts. The next substance that attracted attention as a cause of fever were the salts, and Finkelstein, as well as many of his followers, adheres to this view. Much has been written about "salt fever," and many authors claim to have produced fever by injecting subcutaneously sterile solutions of various salts, particularly sodium chloride. Other investigators believe, however, that the fever is caused by the bodies or endotoxins of dead bacteria in the water, and that if sterile distilled water be used, no fever results. There are a number of objections to the theory of salt fever, not the least of which is that subcutaneous injections of normal saline are one of the most efficient means of combating some of the most severe cases of "intoxication." And indeed, Langstein and Meyer, in their book on infant nutrition, advocate this as a method of treatment, also sodium chloride solutions by rectum, despite the fact that they assert that the salts, particularly sodium chloride, are important in depressing the anti-bacterial function of the intestinal epithelium, and that, when they are absorbed, they are extremely toxic and pyrogenetic. Without further discussion, I believe it is fair to say that it has never been shown conclusively that the salts are to be regarded as the cause of the toxic state, and that at the present time the theory of "salt fever" has few adherents.

3. Products of Food Decomposition.

The acids that are formed from sugar fermentation have also been taken into consideration as the toxic agents. It is true that these acids are to a certain extent absorbed, but they are almost completely burned in the body, and in the urine rarely occur, or if they do, only in the smallest traces. It is probable that they have little to do with causing fever, but may play a small part in causing the acidosis, which is a part of the symptom complex.

4. Bacteria.

It is conceivable that the intestinal mucous membrane may allow bacteria to pass through

it into the circulation, and that these bacteria are the cause of the fever. This possibility is not at all likely, although there is some evidence to show that it may occur. Blood cultures from cases of "intoxication" have not shown that there is any demonstrable growth in the blood, and the bacteria which inhabit the intestine and cause fermentation are mainly saprophytes, and have little tendency to invade the body tissues. In true infectious diarrhea, caused by the dysentery bacillus we know, on the other hand, that infection of the blood is not at all an uncommon occurrence.

5. Tobler¹¹ believes that absorption of bacterial endotoxins is the most important cause of the fever, and of most of the toxic symptoms. This seems the most reasonable explanation. In the intestinal tract, during processes of sugar fermentation, there is an enormous increase in the number of bacteria present. Millions of bacteria are being destroyed every moment, and countless new ones are appearing. Why is it not reasonable to suppose that the soluble toxins from the disintegrated bodies of dead bacteria are the substances that cause fever? We can thus liken the fever to other familiar fevers which are caused by absorption of bacterial toxins from other parts of the body. Why should we look to salts and lactose, when there is present a much more reasonable and probable source of fever?

Acidosis. It had been noticed for some years that the severe cases of sugar fermentation had the hyperpneic type of breathing: deep, sighing, tireless respiration—and that the worse the case, the more marked was the hyperpnea. Howland and Marriott¹² have investigated this extensively, and have shown that many of the severe cases have a considerable amount of acidosis, and that acidosis accounts for the hyperpnea, and probably also, in combination with the other factors already discussed, for the toxic condition. It is likely that a good many babies who die from "alimentary intoxication" really die from acidosis. The acidosis may be produced by a number of factors. Acidosis, in general, may be produced in three ways:

1. Increased acid production within the body, by the breaking down of body fat.
2. Increased alkali loss.
3. Decreased acid elimination.

In severe conditions of sugar fermentation

the acidosis is probably produced by a combination of all three factors. The baby is taking little food, hence his body fat is broken down. Also, as mentioned before, there is in "intoxication" a negative alkali balance, caused largely by a considerable withdrawal of the alkali reserve of the body in an attempt to neutralize the acid condition in the intestine. Lastly, the kidneys are as a rule very inactive in intoxication, and it has been recently demonstrated by Schloss¹³ that there may be a considerable impairment of kidney function, as shown by various functional tests. This leads to a retention of acid sodium phosphate, which may be considerable, and which Howland and Marriott believe to be probably the most important factor in producing acidosis.

SUMMARY.

In the severe cases of sugar fermentation there is a fairly distinct clinical picture present which has been called alimentary intoxication. It is a condition arising primarily from the digestive tract, but in its fully developed state it is no longer confined to the intestine, and the entire chemistry of the body is upset. Several views have been advanced to explain the fever, the most reasonable of which is that it is due to the absorption of bacterial toxins. The fever, however, is only a part of the picture: acidosis, a diminished fluidity of the tissues, retention of toxic waste products, and a negative salt and nitrogen balance play important rôles. It is thus impossible to ascribe the toxic state to the influence of one factor alone: several are involved, and each plays its part.

III. THERAPY.

What Sugar to Feed to Normal and Abnormal Babies. Inasmuch as lactose is the natural sugar which a baby gets in breast milk, it seems only reasonable to use this in feeding normal babies. There is no good reason for feeding normal babies on any other sort of sugar. If the baby has a tendency to sugar fermentation, with rather frequent and loose stools, it is better to use one of the maltose-dextrins preparations, as these ferment less easily than does lactose. On the other hand, if the baby is having hard, soapy, alkaline stools, lactose is to be preferred, as it promotes normal fermentative processes in the intestine, and does away with

the constipation. In this type of case large amounts of lactose can sometimes be fed without harm. The constipated, soapy type of stools is especially likely to be seen, I believe, in babies who are fed on dextri-maltose in combination with rather a high protein percentage. There is not enough fermentation of the sugar to promote the normal peristaltic processes, and to make an acid intestine. An alkaline intestine favors calcium soap formation and constipation. Often the addition of one of the liquid malt extract preparations will correct this type of constipation, or lactose may be added to the dextri-maltose already in the mixture, and increased until looser movements result. If, for one reason or another it becomes necessary to feed an unusually large amount of sugar, it is best not to use lactose, as there is less risk of upsetting a baby with large amounts of a maltose-dextrins preparation than with equal amounts of lactose. It must be remembered, however, that maltose is not a specific for all sugar troubles, and that certain babies do not do at all well on it. Sucrose has as its only advantage that it is cheaper than any of the other sugars, and it is well not to use it unless for financial reasons, as it is not a good plan to have a baby develop a sweet taste. Sucrose seems to ferment with about the same readiness that lactose does.

Amount of Sugar to be Fed. Practically speaking, it is very difficult to exceed the sugar assimilation limits of a baby, because almost always vomiting or diarrhea result before this stage is reached. Babies vary immensely in the amount of sugar that they can take. The usual rule is not to exceed 7.00% of sugar in the formula, and in general this is a good rule to follow, but may often be broken with advantage. There are many babies who cannot digest fat well, some who cannot digest protein well, and in these cases the sugar digestion is often very good, and a large amount of sugar may be fed without causing any disturbance. This is a truth that we often do not realize in difficult feeding cases. In babies with loose bowels the sugar cannot usually be much increased, but in a certain type of baby who does not gain, who does not digest fat, and who has constipated stools, a large amount of sugar can be fed with perfect safety. I have in mind a baby six months old who cannot take over 1.25% of protein without diarrhea and vomiting, and who never could be made to gain until she was

put upon 10% of sugar, partly as maltose, partly as lactose. There are a good many babies of this type, I believe, and high sugar feeding seems to send them ahead faster than anything else. The nitrogen needs must be covered, of course, and the minimum of protein necessary for this should be given. Ordinarily in these cases one of the maltose-dextrins preparations is the best sort of sugar to use.

The relation between the sugar and the other food elements, particularly the fat, is important. A very high sugar should never be offered in conjunction with a high fat. It is possible many times to feed a high sugar with a high protein, but in general, if the sugar is to be varied it is best to keep the other food elements low. In certain difficult feeding cases I am in the habit of having the baby's formula made up with perhaps 6 or 7% of sugar and then instructing the mother to add one, or later, perhaps two teaspoonfuls of sugar to each feeding. In this way the baby's sugar tolerance may be tested, and the sugar can be pushed to just under the limit. It is quite surprising to see how well some babies will do on this high sugar feeding, and how rapidly they will gain. They must be kept under close observation, however, for sugar diarrhea may occur at any time. The work of Dunn and Porter¹⁴ is interesting in this connection. They fed a number of babies on high sugar percentages, in many cases as high as 15 or 18%, and as a result of these studies arrived at the following conclusions: "It seems to us that the idea of sugar injuries and sugar intoxication has possibly kept us from the use of large amounts of soluble carbohydrate in certain cases, particularly those unable to take a quantity of fat sufficient to meet their nutritive requirements. That many such babies have intolerance for sugar, is undoubtedly true. But the danger of pushing the sugar to the limit of tolerance we believe to have been exaggerated. The signs of sugar indigestion are distinct and easily recognized, and do not appear to be in any way serious. In many cases great benefit appears to be obtained by greatly increasing the carbohydrate content of the food, and this proceeding may prove a valuable addition to our stock of resources in dealing with difficult feeding cases."

Calculation of Sugar. In calculating the required amount of sugar to add to a mixture to secure a given sugar percentage, one of two

methods may be used. The weight of the sugar may be calculated in relation to the amount of the total mixture, remembering that two rounded tablespoonfuls of lactose weigh about an ounce. Then, if we wanted to add, let us say 3.00% of lactose to a thirty-two ounce mixture,

$3/100$ of 32 oz. = 1.00 (approx.) = 1 oz., or 2 rounded tablespoons.

The next method consists in the use of a table.

One level tablespoon of sugar raises the sugar percentage

2.40%	in a 16 ounce mixture
2.00%	in a 20 ounce mixture
1.60%	in a 24 ounce mixture
1.20%	in a 32 ounce mixture
1.00%	in a 40 ounce mixture
.95%	in a 42 ounce mixture
.80%	in a 48 ounce mixture

WEIGHTS AND MEASURES.

3 level teaspoons = 1 level tablespoon

2 level tablespoons = 1 large kitchen spoon

Cane sugar is considerably heavier than lactose or the dextri-maltose preparations, and this should be taken into consideration in using it.

	CANE SUGAR	LACTOSE	DEXTRI-MALTOSE
1 level tablespoon	= 15 gm.	—10 gm.	—9 gm.
1 rounded tablespoon	= 25 gm.	15 gm.	14 gm.

Maltose-Dextrins Preparations. In the last few years, numerous maltose-dextrins preparations have been put upon the market. Most of the proprietary foods contain large amounts of dextrins and maltose, but the preparations referred to below should hardly be classed as proprietary foods, as no extravagant claims are made for them, and it is recognized that none of them are complete *foods*, and should be used simply as sugars, when the addition of a maltose-dextrins preparation to the mixture is indicated for any reason. The maltose-dextrins preparations are made from potato, barley or wheat starch by the action of the diastatic malt ferment. The starch is first broken down into a mixture of various dextrins, and as the process continues some of these dextrins are further broken down into maltose. Pure maltose is never used in infant feeding; it is a chemical curiosity, very expensive and difficult to prepare, and is said also to cause a severe diarrhea, not from its fermentation, but from its own irritating action. So when we ordinarily speak of feeding a baby on maltose, we mean a mixture of maltose and dextrins. The

maltose-dextrins preparations on the market vary considerably in their composition: some contain a larger amount of maltose than of dextrins; some the reverse.

It is important to bear in mind that they cannot be used interchangeably, as some of them act much differently from others. In general, the preparations that contain large amounts of dextrins are rather constipating in their action, on account of the fact that dextrins are broken down and absorbed so slowly. These preparations may often be advantageously combined with lactose in the formula, and if constipation exists, 2 or 3% of added lactose will usually correct it. The preparations that contain a large amount of maltose are, on the other hand, quite laxative in action, and sometimes a most excellent method of treating constipation in babies is to add one or two teaspoonfuls of one of the liquid malt extracts to each feeding. The important thing in dealing with most cases of constipation is to have a proper understanding of the use of the various sugars. A list of some of the maltose-dextrins preparations follows, with their percentage compositions.

MEADE'S DEXTRI-MALTOSE No. 1.	D.-M. No. 2.	D.-M. No. 3.
Maltose 52%	Maltose. 53%	Maltose 52%
Dextrins ... 41%	Dextrins 42%	Dextrins ... 41%
Sodium chloride 2%		Potassium carbonate. 2%
HORLICK'S FOOD	HORLICK'S "DIASTOID"	
Maltose 64%	Maltose 73%	
Dextrins 17%	Dextrins 11%	
Protein 12%		
Fat 1.4%		
BORCHERDT'S MALT SOUP EXTRACT*	BORCHERDT'S DEI- MALT SOUP EXTRACT	
Maltose 57%	Maltose 71%	
Dextrins 12%	Dextrins 13%	
Protein 6%	Protein 9%	
Potassiumcar- bonate 1.1%		
"MALTINE" MALT SOUP EXTRACT*	MELLIN'S FOOD	
Maltose 62%	Maltose 58%	
Dextrins 3%	Dextrins ... 20%	
	Protein 10%	
	Fat 16%	
	Potassiumbi- carbonate. 2.5%	

* A liquid of the consistency of very thick molasses.

The liquid maltose preparations are very laxative in action, and not more than 2% should ever be added to a mixture. Also, it must be remembered, in using the liquid

preparations, that they contain a good deal of water, and allowances must be made accordingly in calculation.

TREATMENT OF MILD AND OF SEVERE CASES OF SUGAR FERMENTATION.

The treatment of these conditions is of very great importance, as often by proper treatment life may be saved, and with improper treatment the case may be changed from a mild to a severe one, and death may result. Many cases of mild sugar fermentation may be controlled by simply diluting the food for a few days or by omitting all added sugar. If the case is a mild one it may not be necessary to go further than this. The more severe cases will require further treatment, which may be discussed under the following heads:

1. Purgation.
2. Food.
3. Water.
4. Alkali.
5. Intestinal irrigations.
6. Drugs.

1. It is a routine with many practitioners to give castor oil or calomel to any baby with diarrhea the first time they see him. This is often a grave error. It is true that it is desirable to empty the intestine, but if the baby is having ten or fifteen loose stools a day he is emptying himself as fast as he possibly can, and to give a purge to such a baby is simply to irritate and to make functionally weaker an already irritated and weakened intestinal mucous membrane. If the baby is having fewer stools, and particularly if he is seen at the very onset of his illness, a purge is by all means desirable. Personally, I prefer castor oil, and this is the purge used almost universally in this part of the country. In the South, however, where there is an enormous amount of infantile diarrhea of various sorts, I have rarely seen castor oil used. Calomel takes its place, and it is often true that a baby who has an irritable stomach will keep down calomel better than he will oil. Calomel also is of service occasionally in controlling vomiting when it is due to reversed peristalsis. As an intestinal antiseptic it should not be used, and there is a certain amount of evidence to show that there may actually be a greater bacterial growth in the intestine when calomel is given than when

it is not. The initial purge should not be repeated, and I believe it a great mistake to give a daily purge, a practice which is not at all uncommon. In the mild cases it is not necessary to starve, and many times the mildest ones will respond to a simple dilution of the food for a day or two. Cases slightly more severe may be put on special food (see below) without a preliminary starvation, but the really severe cases with toxic symptoms must have the intestine thoroughly emptied by starvation for about twenty-four hours. During the period of starvation nothing should be given but water or weak tea, and this should be forced in order to supply the child with fluid.

2. Food.

Principles of Feeding. Inasmuch as the condition that we are dealing with is a fermentation of sugar, the chief principle to bear in mind is to feed a low percentage of sugar. Since there is often a secondary fermentation of fat, it is usually desirable to reduce somewhat the fat in the food offered. A high protein in an easily assimilable form in combination with a low sugar and a fairly low fat gives us a food which will stop excessive fermentation by withdrawing the fermentable substance, and also by tending to produce an alkaline intestine instead of an acid one. An alkaline intestine containing little sugar also favors the formation of solid soapy stools, a condition which is desirable, as in this way the diarrhea is controlled. Small amounts of food should be offered at first as the food tolerance for every element is much lowered.

Details of Feeding. Any milk modification which is put together on these principles is a suitable food upon which to feed cases of sugar fermentation. The exact method to be used will vary somewhat according to whether the baby is to be fed on a home modification or from a milk laboratory.

HOME MODIFICATION.

1. Skim Milk Mixtures.

In much of our out-patient work it is impossible to prescribe complicated formulae, for home modification, as the intelligence of the patients and the conditions of the home are incompatible with any procedure which is not very easily explained and understood. For these cases simple dilutions of skim milk with water answer fairly well, although not nearly

so well as some of the more complicated mixtures, as it is impossible with simple skim milk dilutions to secure a high protein in combination with a low sugar. We can, however, secure a fairly low sugar, and after the preliminary purge or starvation, may begin with skimmed milk or water equal parts (boiled five minutes), giving a percentage composition of fat .00, sugar 2.25, protein 1.60. Small amounts should be used at first; a baby who would ordinarily take perhaps six ounces at a feeding, would be given three or four ounces of this mixture. Such a procedure does not apply at all well to the very severe cases, however, and these cases should have hospital treatment if conditions are such that one of the more complicated mixtures cannot be prepared at home. As the baby improves, the amount of the feeding may be gradually increased, and soon a little fat may be added. Lastly, sugar is to be added, in the form of one of the maltose-dextrins preparations. A more satisfactory method of feeding is with skim milk dilutions to which powdered casein has been added. In 1915 I fed a series of cases on this method with very good results. Unfortunately, since the war, the only preparation of powdered casein (Laroson) that was on the market, is not available. A commercial powdered casein preparation is very much needed at the present time, and it would be a great benefit to many babies if one were put upon the market.

2. "Eiweiss" Milk.

The famous "eiweiss" milk is probably the most satisfactory food upon which to feed cases of sugar fermentation. It was devised by Finkelstein and Meyer in 1910, and its usefulness, according to them, is based upon the following properties:

1. Low sugar.
2. Dilution of the whey.
3. High casein.
4. Combination of relatively high fat and high casein, thus favoring the production of formed stools.

Since Finkelstein's original contribution, eiweiss milk has been used extensively in all parts of the world, with a great deal of success. Their original directions for preparing it are as follows:

"To one liter of milk one teaspoon of rennet is added. This is then allowed to stand in a

water bath at 100° F. for one hour. It is then placed in a linen bag and the whey strained off by suspending this for one hour. The curd is rubbed once or twice through a fine sieve with the addition of one-half liter of water, and one-half liter of buttermilk." "Eiweiss" milk, then, consists of the curds from a quart of milk, plus a pint of buttermilk, and a pint of water. It has the following composition: fat, 2.5%; sugar, 1.5%; protein, 3.0%; salts, .50%.

Since Finkelstein published his original formula, several modifications have been proposed, all based upon the same principles, however. At first it was thought best to use as low a sugar percentage as possible in eiweiss milk, but it is recognized now that many babies with severe sugar fermentation will die if the sugar is entirely withdrawn, so it is usually best to add sugar up to about 3%. If it is desired to use a nearly fat-free eiweiss milk, fat-free milk may be used instead of whole milk in making the curd. Then the only fat in the mixture is the small amount contained in the buttermilk. The Germans use at the onset very small feedings of eiweiss milk, perhaps giving only one or one and a half ounces at a feeding for the first day or two. In this country the tendency is to use somewhat larger amounts, bearing constantly in mind, however, that the food tolerance of babies with severe sugar fermentation is very meager, and that fatal results may occur from over-feeding. As the baby grows better, and as the stools decrease in frequency the amounts of the feedings may be increased and more sugar may be added. Eiweiss milk is not a permanent food, and a baby should not be kept on it for longer than a few weeks. Eiweiss milk is a tried, proved, and satisfactory food for sugar fermentation, but the difficulties of its proper preparation are considerable, and if a milk laboratory is at hand it is usually better to order the same sort of preparation prepared at the laboratory.

3. *Lactic Acid Milks.*

Natural buttermilk or artificially prepared lactic acid milk are foods which may be used with considerable success. Buttermilk is a food very low in fat, lactic acid milk may or may not be, depending upon what fat percentage the original milk used in its preparation contains. Buttermilk and artificial lactic acid milk are both high protein foods, containing the protein in an easily digestible form (lac-

tate of casein). The sugar is somewhat lower than in ordinary milk, owing to the fact that some of it has been changed into lactic acid. The chief advantages of these preparations are their high protein content, and the fact that they contain living lactic acid bacilli. The intestine in babies with sugar fermentation is swarming with all sorts of harmful organisms, and if it can be flooded with lactic acid organisms in a viable state, the theory is that the growth of the other organisms will be suppressed, and that the harmless lactic acid organisms will supplant them as the intestinal flora. Metchnikoff was the most prominent advocate of these ideas, believing that old age was largely due to putrefaction in the large intestine, and that this could be overcome and the life of the individual prolonged and his general condition greatly improved by the drinking of large quantities of the lactic acid milk preparations. Owing to the prominence of Metchnikoff and the attractiveness of the theory, his views received wide attention, and the drinking of the various lactic acid milk preparations became the fad. This has spread to infant feeding, and it is my belief that the advantages of "buttermilk" feeding have been considerably exaggerated. There is no question but that many cases of sugar fermentation respond well to lactic acid milk, particularly those cases in which the gas bacillus is causing the fermentation, but I believe that the principle of a low sugar and a high protein is, in most cases, much more important than the principle of implanting the lactic acid bacillus in the intestine. If one of these preparations is to be used it is better to have the lactic acid milk prepared at home by means of one of the various liquid cultures on the market than to use ordinary buttermilk, as buttermilk is likely to be rather old when it reaches the consumer, and putrefactive as well as fermentative changes may have occurred in it. I have actually known a specimen of buttermilk in Carolina which was about to be fed to a baby, to be full of well-grown maggots!

Laboratory Feeding. In a large city where there is a milk laboratory, laboratory feeding is the most satisfactory way of feeding babies whose parents can afford it. This is particularly true in cases of sugar fermentation, where, in order to secure the best results, rather complicated mixtures may need to be used. The

milk laboratories have a stock preparation of precipitated casein, and this can be added in any desired amount to any formula, to secure a wide variety of relationships between the protein and the sugar in the mixture. In a severe case of sugar fermentation we might write such a prescription as this: fat 1.00%, sugar (dextro-maltose) up to 2.50%, protein 1.20%, plus precipitated casein up to 3.5%. If the baby has a low fat tolerance a low fat may be used; if it is advisable to use a high fat, as high a fat as desirable may be prescribed, relationships which are not nearly so feasible when the milk is prepared at home. Then again, in laboratory feeding the high protein milk may be run through the homogenizing machine, and a very smooth mixture obtained, a condition which is much desired on account of the ease with which it goes through the nipple, and which cannot be obtained in home modifications. Also, if lactic acid milk is desirable, the mixture (of any prescribed composition) may be treated with the lactic acid bacillus. In short, with laboratory feeding at our command we are much more likely to feed the individual baby according to his individual needs than if we use home-made ewe milk of stock composition; we save the family an immense amount of trouble, and we feed our baby with a product which we know is uniform in composition.

Water. Fully as important as the feeding is the administration of fluid. *Never let a baby with sugar fermentation get into a "dried out" condition.* In severe diarrhea there is a great loss of water from the body, also in these cases the child is usually taking but little milk, so that he may be putting out a great deal more fluid than he takes in. Again, if there are evidences of acidosis, and if the breathing is of the hyperpneic type, he is probably losing more water through the lungs than would be the case under normal conditions. Evidence is accumulating year by year to show that the toxic symptoms in severe cases of sugar fermentation are largely due to a lack of water. The kidneys are always very inactive in these cases, and it has been recently shown by Schloss that there is a considerable impairment of renal function, and that the blood nitrogen is considerably increased, due to deficient excretion of waste products by the kidney. There is much evidence, according to Schloss, to show that "in-

testinal intoxication" is very similar to uremia. Also Howland and Marriott have shown that the acidosis in this condition is largely due to defective elimination of acid sodium phosphate by the kidney. The faulty action of the kidney is caused by a dehydration of the tissues brought about by a loss of water in the stools (and possibly expired air) and by the fact that the baby takes little fluid by mouth and is very likely to vomit what he does take. It is, therefore, vital to supply fluid in some way. Water by mouth is the simplest method, and if the baby can retain it, it is best given in this way. A chart, showing the exact intake of fluid, should always be kept in dealing with a severe case of sugar fermentation. If the baby does not take fluid well by mouth it is best to resort to subcutaneous administration of normal saline, and this should be done *early*. It is surprising to see how much fluid a baby will take in this way, how quickly it is absorbed, and how great an improvement in the general condition often follows. If normal saline is given it is best given in the loose tissue of the abdomen or flank, and *not* subpectorally, for the reason that a baby with intoxication has very little strength to spare, and when perhaps 500 grams of water are put upon his chest, and he has to raise this weight with each respiratory movement, it uses up a part of his scanty store of strength. It has also been recommended to administer fluid intravenously through the longitudinal sinus, and intraperitoneally. The fluid is undoubtedly absorbed more quickly by these methods, and the technic is not difficult, but in my personal opinion such methods as these apply very poorly to private practice, and for practical purposes the method of subcutaneous administration is satisfactory. The administration of fluid by the rectum does not work well, as it is very difficult to keep a rectal tube in position, owing to the increased peristalsis and frequency of defecation.

5. **Alkali.** In severe cases of sugar fermentation, when the breathing is of the hyperpneic type, alkali administration is advisable, as acidosis probably exists. Sodium bicarbonate is the best alkali to use, and should be given either by mouth or intravenously. Rectal administration* of soda to babies with diarrhea is not at all satisfactory, for reasons mentioned above. Neither is the subcutaneous use of soda

* In older children with acidosis without diarrhea, rectal administration is the method of choice.

advisable, and it is very irritating to the tissues, and is likely to cause necrosis. If carbon dioxide is bubbled through the solution of soda it is much less irritating (Howland and Marriott—*loc. cit.*) but this procedure is hardly practical for general clinical use.

If soda can be retained by mouth it is best given in this way in fairly large dose; 30 grains every two hours can be given to most babies. Soda should be pushed until the urine becomes alkaline as shown by the simple litmus paper test. If the baby is unable to retain soda by mouth, which is very likely, it must be given intravenously. A 4% solution may be used, and, depending upon the size of the baby, from 75 to 150 cc. of this may be given (Howland and Marriott). In this way a large amount of soda is immediately distributed through the system. In very few babies is it possible to give intravenous injections into an arm vein on account of the small size of the parts, and for this reason the jugular is the best vein to select. In most cases there will be little difficulty in getting into the jugular, but if this is unsuccessful the soda will have to be given through the anterior fontanelle into the superior longitudinal sinus.*

6. *Intestinal Irrigations.* Intestinal irrigations with normal saline *used at the beginning of the attack* may be of considerable value in emptying the colon of toxic products. They have, however, little place in the *later* treatment, and in most cases when used as a daily routine, I believe they do more harm than good, by irritating and disturbing the child. The baby's body is ridding itself of noxious material as fast as it can by watery diarrhea, and there is no point in attempting to wash out the intestine farther, particularly as most of the trouble is in the small intestine, and it is doubtful if this can be reached by intestinal irrigations. In infectious diarrhea (an entirely different condition), where there may be ulceration of the colon and of the ileum, intestinal irrigations with astringents sometimes probably do some good.

7. *Drugs.* In most cases of sugar fermentation drugs are of little value; in some cases they are needed. The drugs that have been used may be divided into two classes:

1. Those which are directed against the diarrheal process itself.

2. Those used as stimulants.

1. Often in private practice it is necessary to give some drug on account of the state of mind of the family. They feel that the baby is not being treated correctly if he gets no medicine. Under these conditions *chalk mixture* or *bismuth* may be given. The chalk mixture is mildly alkaline, and may do some good in helping to neutralize the acids which are present in the intestine, although this is accomplished much more efficiently by a suitable regulation of the food supply. Bismuth subcarbonate has been used for years in the treatment of diarrheas of all sorts; it is mildly astringent, and probably slows the intestinal peristalsis somewhat. Its chief disadvantage is that it turns the stools black, and thus makes it difficult to judge of their true character. These two drugs can do no harm, and *may* do some good.

Intestinal antiseptics, such as *salol*, *calomel*, etc., are of no value, and should not be given, as it is quite impossible to sterilize the intestine, or to influence its bacterial flora enough to amount to anything in this way. Here again, the character of the food supply is the most important factor to consider.

Opium in some form, usually as paregoric, has a definite place in the treatment of some cases of sugar fermentation. It should never be given as a routine, but only when the watery diarrhea and tenesmus is so excessive as to exhaust the child. Opium has its dangers, for if the diarrhea is stopped by it, the absorption of toxic material is favored, but in many cases where the child is worn out by excessive straining and tenesmus, its use seems to be the lesser of two evils.

2. Stimulants may be often needed, of which the most valuable are caffeine, camphor in oil, adrenalin and brandy. Personally, I prefer caffeine citrate, or caffeine sodium benzoate, subcutaneously, given in rather large doses. Camphor in oil is also valuable for a failing circulation, but as a general stimulant cannot be compared with caffeine. Brandy or whiskey, ten or fifteen drops subcutaneously, is a valuable stimulant for one or two doses, but should not be used continually, as each period of stimulation is followed by a period of depression. Caffeine or camphor is, I believe, in most cases superior to alcohol. The subcutaneous injection of one or two minims of a one to one thousand adren-

* For the technique see Dunn, Am. Jour. Dis. Child., Vol. xiv, No. 1, 1917, p. 52.

alin chloride solution may be of service where there is circulatory collapse with very low blood pressure. Its action is, however, only fleeting.

As a brief summary let me say that the two most important things in the treatment of sugar fermentation are proper feeding, and plenty of water, and that most cases may be controlled by these alone, without the use of any other special methods of treatment.

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DENTAL DISEASES IN RELATION TO DISEASES OF THE NOSE AND THROAT.*

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ORAL diseases are quite frequently closely related to diseases of the nose and throat. They may be the direct cause of the disease (dental infection and maxillary sinusitis) or they may be only a debilitating influence (compressed maxillae and adenoids). Another type of condition presents a still different character. I have in mind referred pain of dental origin, simulating symptoms associated with diseases of the ears and sinuses.

The diagnosis of dental lesions very often calls for most careful and painstaking investigation, as many conditions are not evident in an ordinary dental examination. They are frequently of chronic character, giving no local symptoms, and are not noticed by the patient. As no special complaint is made, such diseases may develop under the very eyes of the dental practitioner, who, as a rule, spends little time in making a thorough examination of the mouth and adjacent parts, being too much taken up with routine work. In an examination of the patients at the Robert Brigham

Hospital I found that 72 out of 81 (90%) had dental abscesses,¹ and none was really aware of having trouble with the teeth, although it was necessary to extract 334 teeth from the 72 patients.

The development of the Roentgen diagnosis² has greatly facilitated examination of the oral tissues, but such a diagnosis should not be entirely relied upon. The application of temperature and electrical tests, as well as the diagnostic use of local anesthesia, are quite frequently necessary in order to ascertain the exact location and nature of the trouble.

The research work of the last few years has increased our knowledge a great deal, and I am taking the liberty of showing, with the Roentgen pictures accompanying the case reports, slides of microscopic specimens which illustrate typical lesions.

COMPRESSED MAXILLAE AND NASAL OBSTRUCTION.

The connection between malocclusion and nasal disorders has been observed by Hippocrates, who writes, "Those who suffer from headache and running ears have a high-arched palate and irregular teeth." Bottle-feeding and thumb-sucking are the primary causes of the compressed, V-shaped arch and protruding maxillary bones. The lack of lateral development prevents the expansion of the nasal passages and invites the formation of adenoids. This, in turn, causes mouth-breathing, which completes the vicious circle. When treating a case of malocclusion of this type it is important, first, to establish nasal respiration, as without the coöperation of the rhinologist, the dentist's treatment would be futile. On the other hand, it would be entirely useless to hope for permanent relief by removing the nasal obstruction if the jaws did not receive proper orthodontic treatment. It is important to undertake this at an early age, the principal aim being not only to straighten the teeth but to stimulate growth of the bones of the entire face. This can also be furthered by proper diet, which forces the child to masticate, and by special exercises of the muscles of the face.

MAXILLARY SINUSITIS.

Maxillary sinusitis in its various forms is, according to Brophy,³ in about 75% of the cases due to diseases of the teeth. Chronic abscesses on the upper teeth very frequently

* Paper read before the New England Otological and Laryngological Society.

cause chronic infection of the antrum, with polypoid degeneration of the mucous membrane. This condition often develops without the patient's knowledge, and is discovered only in routine examination. If large abscesses occur on the upper molars and bicusps, sinus disease should always be considered as a possibility, and, on the other hand, the teeth should be roentgenographed in all cases of maxillary sinusitis. The extraction of the diseased teeth, with thorough curettage of the diseased bone, is absolutely necessary as a part of the treatment, and the wound in the alveolar part of the jaws should be freed from sharp, projecting pieces of bone, and closed by means of sutures.

CASE 1. Mr. W. W. C. *History.* Pain in zygomatic and infraorbital regions, and discharge from right nostril. A frontal Roentgen plate shows radiopacity of the right antrum. The cause was ascertained by a film which showed radiolucent areas, indicating abscesses, on two roots of the upper first molar.

Operative Findings. The antrum was found to be filled with polypoid growth, and the bone over the molar was entirely necrosed.

CASE 2. Mr. D. G. *History.* Five weeks before being referred to me the patient began to have rheumatic swelling and pains in the knees. The shoulders were next attacked, and in a short time all the large joints became involved. He took electric baths, but without success. When he came for examination of the mouth, he was walking on crutches and was in great pain, although he had no pain whatever in the face or mouth.

Roentgen Examination. Fig. 9 shows radiolucent areas indicating abscesses on an upper incisor and upper molar. The antrum was suspected and in a Roentgen picture proved to be radiopaque.

Operative Findings. The antrum was opened and found to contain inflammatory granulation tissue, caused by the tooth, which was extracted.

Result of the Operation. Patient first suffered exacerbation, due to the surgical auto-inoculation, and had to stay in bed for a few days, not being able to use his joints. He then started to improve, and after seven weeks was entirely rid of all his arthritic symptoms.

CASE 3. Miss A. P. *History.* Patient was in poor health, and was referred by her dentist for extraction of the left upper first molar. After extraction of the tooth a probe could be passed into the antrum, which was found to contain granulation tissue.

Roentgen Examination. A frontal plate (Figs. 20 and 8) was taken immediately, which showed the antrum on this side to be affected, while on the other side a large periodontal cyst was discovered. This was also caused by abscessed teeth, as diagnosed from another film of the corresponding side. The remarkable thing about this case is that the patient had no symptoms from either of these conditions. She, however, realized a very marked improvement, both locally and in her general health, after the extraction of the teeth and treatment of the antrum.

CASE 4. Mrs. R. H. *History.* Patient complained of neuralgic pain on right side of face.

Roentgen Examination. Shows right upper second bicuspid and molar devitalized. These teeth are in close relation to the antrum.

Operative Findings. After the molar was extracted a small amount of pus came from the antrum.

CASE 5. Miss M. L. *History.* Patient had been in a run-down condition for a considerable length of time. Had been under a physician's care, but did not improve.

Roentgen Examination. Fig. 10 shows indications of many pus pockets and abscesses in the right upper jaw. A frontal plate showed that the antrum was involved.

Result of Operation. After removing the teeth and treating the antrum the patient improved rapidly.

CASE 6. Miss F. E. M. *History.* Patient had been feeling very poorly for several months.

Roentgen Examination showed right upper third molar devitalized. Both molars enter into the maxillary sinus for quite a distance. A frontal plate showed radiopacity of the right antrum.

DISEASES OF THE PHARYNX OF DENTAL ORIGIN.

Chronic Pharyngitis is quite frequently associated with pus discharge from sinuses of chronic tooth abscesses, from pus pockets due to ill-fitting crowns and bridges, or from pyorrhea alveolaris. These conditions can readily be detected in a patient's mouth, although, as a rule, the infection gives very little local disturbance.

Pharyngeal Abscesses are sometimes of dental origin. Partly erupted lower third molars, which have become infected, are usually the cause. The gum near the tooth becomes involved, and from this point the infection spreads to the throat. Difficult deglutition is a common symptom, and trismus of the masseter and internal pterygoid muscle prevents

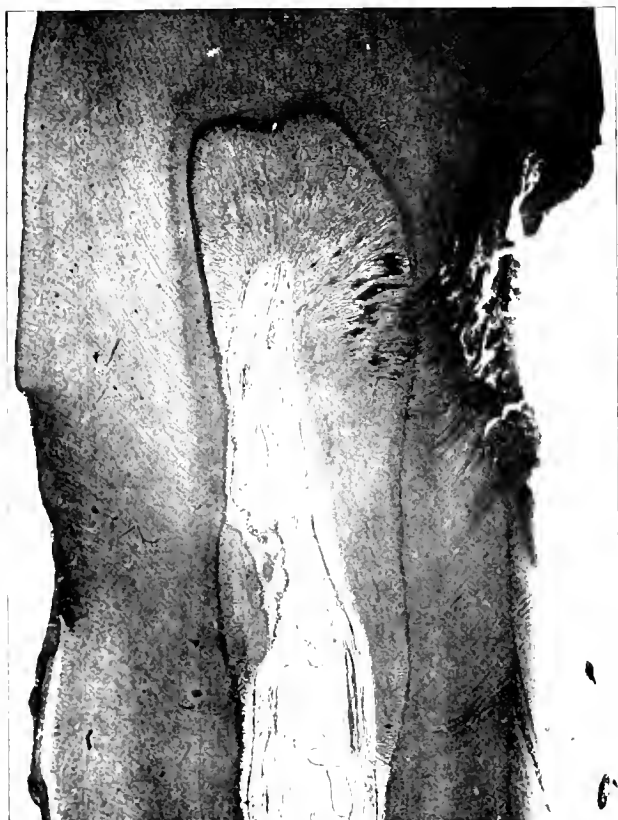


FIG. 1. Cross section through a front tooth showing decay on one side and partial filling in of the pulp chamber with secondary dentine, the deposit of which is a protective reaction.

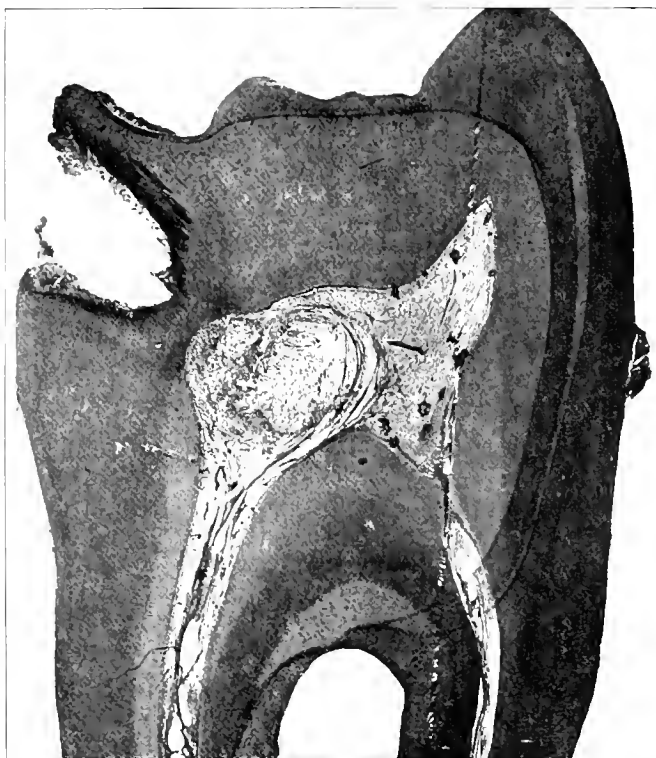


FIG. 2. Photomicrograph of section through a tooth showing decay which has progressed very near the pulp chamber. The pulp has become infected through the dentinal tubuli and shows a large abscess in the pulp chamber. Note how the nerves are pressed to the side.



FIG. 3. Photomicrograph showing the root of a tooth with a so-called "blind abscess," or dental granuloma, an inflammatory lesion in the bone which is associated with absorption of the tooth root. Note the rough outline of the part of the tooth which is covered by the granulation tissue.



FIG. 4. Photomicrograph of a tooth root with a "blind abscess" or dental granuloma. This is another of these chronic inflammatory lesions which has caused a large amount of absorption of the apex of the tooth, involving both the cement and the dentine.

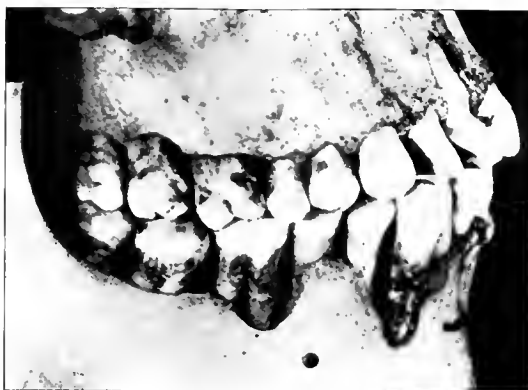


FIG. 5.—Photograph of a skull, showing bone destruction caused by pyorrhea alveolaris. Some of the roots are almost entirely exposed.



FIG. 6.—Photograph of a skull, showing an upper second bicuspid with gold crown. This is a devitalized tooth causing a chronic inflammatory condition of the periodontal membrane with involvement of the bone. The specimen shows osteoporosis of the alveolar plate, which, directly over the root, has been entirely absorbed, giving a view of the abscess cavity.



FIG. 7.—Photograph of a skull, showing lesions on both the maxillary and mandibular bones. On the six-year molar the infection occurred through a cavity on the distal surface, the distal root being almost separated from the rest of the tooth. The caries of the bone is quite extensive. The entire outer plate has been destroyed, exposing both the mesial and distal roots. In the upper jaw we find a large amount of rarefied bone beneath and anterior to the zygomatic process. This is due to infection from the second bicuspid and first molar.



FIG. 8.—Roentgen film of Case 3, showing three devitalized molars, from which the antrum was infected.



FIG. 9.—Roentgen film showing the upper first molar, an abscessed tooth which caused the infection of the antrum, cited in Case 2. When taking the picture, a probe which was inserted in the root canal of the tooth entered the antrum.

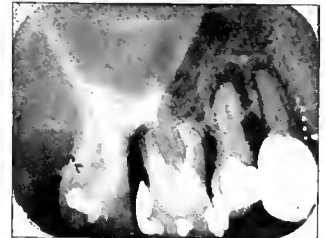


FIG. 10.—Roentgen film of Case 5, showing many abscesses and pus pockets.

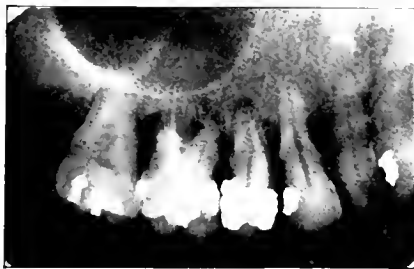


FIG. 11.—Roentgen film showing pus pockets due to pyorrhea alveolaris. The bone between the teeth has been absorbed like that of the skull shown in Figure 5.

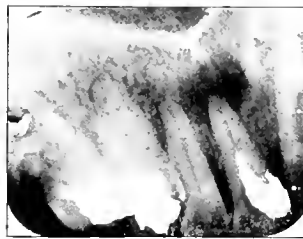


FIG. 12.—Roentgen film showing a blind abscess or dental granuloma on an upper incisor, the root canal of which is only partly filled. This is a condition similar to the one shown in skull of Figure 6.

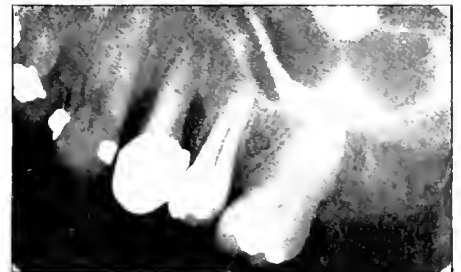


FIG. 13.—In this Roentgen film, two pus pockets are shown on one tooth. They were caused by the ill-fitting gold crown.



FIG. 14.—Roentgen film of Case 10, showing decay under the filling of the first bicuspid, involving the pulp and causing periapical infection.



FIG. 15.—Roentgen film of Case 9, showing pulp-stones in the two molars.



FIG. 16.—Roentgen film of Case 12. The neuralgia in this case was due to an unerupted fourth molar and decay under the filling in the mesial surface of the third molar.

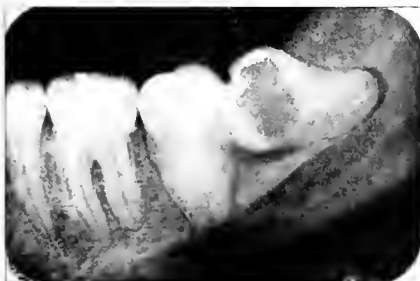


FIG. 17.—Roentgen film of the lower impacted wisdom tooth in Case 7.

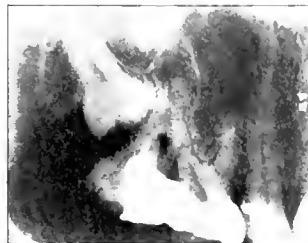


FIG. 18.—Roentgen film of Case 14, showing an upper unerupted, impacted third molar and a small cyst at one of the roots of the first molar.



FIG. 19.—Roentgen film showing partly erupted, impacted lower third molar of Case 8.



FIG. 20.—Roentgen plate of Case 3, showing an infected antrum on the left side. The cause of this condition was of dental origin and the teeth are shown in Fig. 8. On the other side a periodontal cyst is shown, which takes up most of the space in the antrum.



FIGS. 21 and 22.—Roentgen films of Case 13. Fig. 21 shows the condition of the lower third molar when the patient was 17 years old. The roots of the tooth are growing towards the inferior dental canal and are causing pressure. The tooth is not in contact with the second molar. Fig. 22 shows the condition when the patient was 19, two years later. Note how the tooth has changed its position.

the patient from opening the mouth. Clinically, the condition may resemble a peritonsillar abscess. Often a great deal of pus gathers and burrows down into the neck. If it arises from a dental source the diagnosis can be made easily by means of the Roentgen ray.

CASE 7. Mr. R. B. F. *History.* Had repeated trouble with the left lower wisdom tooth. The last attack was the worst, being accompanied by large swelling, difficulty in swallowing, trismus of the muscles of the jaw, and pus discharged around the tooth. The patient first consulted a laryngologist, as he thought the primary trouble was in the throat.

Roentgen Examination. A Roentgen picture (Fig. 17), however, disclosed an impacted lower third molar with a large cavity in the crown, apparently involving the pulp and causing a large apical abscess.

CASE 8. Mr. M. *History.* Patient was unable to open his mouth, and had been suffering a great deal of pain for several days. The throat became inflamed and swallowing painful. Temperature 101° F.

Roentgen Examination revealed a partly erupted third molar (Fig. 19).

Operative Findings. After the mouth was opened under ether, pus was seen to come from the third molar region, the tissues around which were highly inflamed. After the tooth was removed, from 3 to 4 teaspoonfuls of pus were evacuated through the wound from between the gum and the lingual surface of the mandible, by inserting a finger deep into the pharynx.

NEURALGIA DENTALIS.

The extensive area of distribution of the trifacial nerve and its frequent communications with other cranial nerves and the sympathetic system, explains the clinical observations that pain and irritation originating from some dental or oral cause, may be referred to very distant parts of the face and head, including the ear, the eye, the nose, and accessory sinuses. Such pain may be continuous, intermittent or periodic; it may be intense, sharp, throbbing, or dull, and it may be a sensation of obscure, indefinable pressure. The pain quite often simulates symptoms of sinus disease, and still more often is referred to the ear (otalgia dentalis). The tympanic plexus is connected with the second division of the fifth nerve by means of the sphenopalatine, or Meckel's ganglion, via the great superficial petrosal nerve. The third division communicates through the

small superficial petrosal nerve and otic ganglion, which also gives a branch to the tensor tympani.

The suffering that goes with these affections is often intense, and if of sufficient duration wears the patient out. The cause is sometimes difficult to ascertain, and calls for a careful investigation, the most frequent origins of the condition being pulp-stones (calcareous nodular formations in the tissue of the dental pulp), chemical or thermal irritation of the pulp, as a rule due to fillings, pulp infection of chronic character, causing an irritation rather than acute inflammation, abscesses formed between the teeth from obstructed pus pockets and unerupted and impacted teeth. Among the last we find, not only third molars, but also cuspids and occasionally the other types and supernumerary teeth. The pressure and pain are due to the mechanical force exerted against the obstruction in the effort to come to the surface, or to pressure absorption, affecting a neighboring tooth. I have recently collected data proving that the pain is due not only to the pressure of the occlusal surface of the tooth against the obstructing tissue, but in many cases is caused by the development of the roots in the opposite direction, where they may encroach upon the inferior dental nerve.

CASE 9. Mrs. V. G. L. *History.* Had attacks of neuralgia at intervals on the left side of the face. For three days had been in severe pain, which was especially located in the ear and zygomatic region. Blocking of the posterior superior alveolar nerves with novocain suprarenin synthetic stopped the pain at once.

Roentgen Examination shows pulp-stones in the upper second and third molars (Fig. 15).

Result of Operation. Removal of the pulp and pulp-stones relieved all symptoms.

CASE 10. Miss P. *History.* Earache on right side and occasionally what she called "face-ache," on the same side. No pain in teeth.

Roentgen Examination. Fig. 14 shows large radiolucent area indicating decay under filling of right lower second bicuspid; also radiolucent area at apex of tooth. From these findings we may conclude that the pulp is diseased.

Operative Findings. Pulp found to be necrotic.

CASE 11. Mrs. M. *History.* Complaints of pain over right frontal sinus region, pain in eye, ringing and dull pain in ear.

Roentgen Examination. Revealed two de-

vitalized bicuspid and a cuspid with a large filling near the pulp. Extraction of the bicuspid gave no result, local anesthesia of the cuspid stopped the pain in the ear at once, and extirpation of the pulp ended the pain in the frontal sinus region.

CASE 12. Mrs. H. *History.* Patient had been suffering from neuralgia for six months; had the teeth roentgenographed and examined by two good dentists in New York without finding any cause. Pain extended over entire left side of face (supraorbital, maxillary, mandibular region), as well as toward the neck, back of head and ear. Slight tenderness of cervical lymph glands. Nose, throat and ears examined and found negative.

Roentgen Examination. Revealed a fourth molar (supernumerary) and decay on mesial side of third molar (Fig. 16).

Result of Operation. The day after extraction of the third molar and unerupted fourth molar all pain had disappeared and did not recur.

CASE 13. Mr. F. P. is also a case of particular interest to us. *History.* The patient, 19 years old, suffered for several years with periodical headaches, especially on the right side in the region of the frontal sinuses with indefinite subjective symptoms of pressure in the back of the head. At times the pain disappeared entirely and then a period of suffering followed. Roentgen pictures, showing unerupted wisdom teeth had been taken two years before the patient was presented for examination. These teeth, however, apparently did not exert pressure against those in front and were, for this reason, considered innocent.

Roentgen examination two years after the first plates were taken showed that the teeth had grown into a position which one would not have expected from the positions shown in the first set. (See Figs. 21 and 22.) This is interesting in itself. It was decided to remove all four wisdom teeth, which resulted in complete relief from all symptoms. This demonstrates the fact, already mentioned, that the pain is often caused by the development of the roots of the teeth, which in the first picture of this case are seen to have already reached as far as the inferior alveolar canal.

CASE 14. This is a case where the cause was found in the upper jaw. *History.* Miss R. had periodic headaches in the back of the head for several years. They were quite severe and always on the right side. Sometimes the whole half of the head, including the right ear, would ache.

Roentgen Examination. (Fig. 18.) Films showed infection of the right upper first and second molars with formation of a small cyst;

also an unerupted, impacted third molar. The pressure exerted by this tooth caused the well-illustrated tipping of the second molar. A frontal plate of the sinuses was negative. Extraction of the three molars was decided upon, and during the operation the antrum was opened, irrigated and closed with sutures. The treatment relieved the symptoms.

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Book Review.

Medical War Manuals, Nos. 5 and 6. By JOHN R. McDILL, M.D., F.A.C.S. Philadelphia and New York: Lea and Febiger, 1918.

Two medical war manuals, By John R. McDill, have been authorized by the Secretary of War and supervised by the Surgeon-General and the Council of National Defense. Manual No. 5, "Lessons from the Enemy," contains a description of the medico-military service of the German army: its organization, the administrative methods of the Sanitary Service, the military base hospitals, and volunteer nursing and welfare under the Red Cross. It also gives an account of the constructive work being carried on for the rehabilitation of disabled soldiers; it describes the re-education of the war cripple, the orthopedic hospital-schools and workshops, and artificial limbs or prostheses. An information blank for the disabled and a word of encouragement to the sick and wounded soldiers are also included. National and communal war relief work and the social health insurance and hospital systems in peace are mentioned. The book, written by a man who has had the opportunity of rendering medical service in Germany, has been published in order that the United States may have a knowledge of the efficiency of the German methods and may adopt such systems as may be profitable.

Manual No. 6, "Laboratory Methods of the United States Army," has been compiled for war purposes. It contains a collection of formulae and technical methods which may be of service to officers of the medical corps in stationary and field laboratories. It deals with the collection and shipment of specimens and materials, solutions and stains, clinical pathological work, quantitative analytical methods, general and special bacteriological methods, and the sanitary examination of milk, water, and sewage. The methods described in this book are the best which are available at the present time, and may facilitate uniformity of procedure in the army laboratories.

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TRAINING FOR DISABLED SOLDIERS.

THE Red Cross Institute for Crippled and Disabled Men has issued several publications concerning the training of the disabled soldier. The pamphlet issued for April, 1918, by John Culbert Faries, Ph.D., deals with "Training in English Technical Schools for Disabled Soldiers." The importance of utilizing the technical institutions available for the training of disabled soldiers, has been recognized in England. The pamphlet describes the vocational education offered in such highly industrial countries as Lancashire and Yorkshire.

In Lancashire, early in 1917, the representatives of the local war pensions committees, local education authorities, branches of the Red Cross Society, and Lord Roberts' Memorial Workshops, met to formulate a scheme for providing for the care, training, and employment of disabled sailors and soldiers. Various trades were found to offer facilities for instruction,

among which were agriculture and horticulture, engineering trades, building and allied trades, coal mining, textile occupations, boot and shoe manufacture, nautical occupation, printing, commercial and clerical occupations, and art industries. In the majority of cases, however, there has not been much call for training, for the demand for labor has made it possible for most of the disabled men to return to their former occupations or find ready employment in other capacities.

The scheme adopted by Yorkshire covers practically the same trades. Training is available in seventeen centers. In the London district, instruction has been offered at the Northampton Polytechnic Institute. The minimum period of training was put at four weeks. The course of training consists of workshop practice in wiring work and the use of simple tools, powerhouse demonstrations, electrical and physical laboratory work, class demonstrations in the elements of electrical engineering and of simple engineering physics, the writing of reports upon the demonstrations and on the laboratory work, and oral examinations at the end of the course. The Battersea Polytechnic has arranged to instruct disabled soldiers and sailors in the following courses: chemical trades, mechanical and electrical engineering, and courses in sanitary inspection, music, art, and cookery. In general, the men attend classes specially arranged to meet their needs. The Birmingham Technical School and the Newport Technical Institute have also undertaken this work. The Ministry of Pensions is to pay the cost of training disabled soldiers or sailors in technical schools.

The courses are necessarily short and intensive, designed to prepare adults in a brief period to become wage-earners. Trade Advisory Committees investigate the kind of instruction desirable, the prospects of permanent employment, and the scale of wages paid in a particular trade.

One of the publications issued for May, 1918, Series 1, No. 9, by Gertrude R. Stein, deals with "Placement Technic in the Employment Work of the Red Cross Institute for Crippled and Disabled Men." To find employment for a cripple involves a great amount of individual attention to each case. The Red Cross Institute has recognized the need of careful, scientific organization in the field of employment, and, as a first step, took over the work started

at Hudson Guild by the Federation of Associations for Cripples.

The experience of the past year has shown that the functions of an employment bureau are two-fold—employment work and investigation of industry. Individual work with applicants is needed, and it is essential that the employment worker differentiate between the placeable and the unplaceable. A handicapped employment bureau cannot be successful unless it is organized according to the most modern and efficient business methods; it must, also, be flexible and adaptable to new ideas. The crippled worker must be trained in order to make a livelihood. The most important factor in effective employment work is a full and intelligent registration of the applicant,—covering the kind of work he wants, the work it would be impossible for him to do, the description of the handicap and a report from the hospital, his family background and work history. Every effort should be made to secure work which is congenial to the applicant.

In order to facilitate the problem of securing work for cripples, the Workmen's Compensation Law must be changed in some way, and prejudice must be overcome. Publicity, answering advertisements, visiting employers, the coöperation of the State Clearing House, and careful follow-up work, are factors needed in successful employment work.

The second division of the work at the Institute Employment Bureau is the industrial survey. The larger industries of New York City are listed and the most suitable have been investigated. Shoes, leather goods, piano action, toys, and cigar factories, offer the most promising fields. Factories and manufacturers' associations have been visited.

The Employment Bureau of the Red Cross Institute for Crippled and Disabled Men aims to obtain congenial work for every crippled man and boy in New York City, and to gather information about industry which will make it possible in the future to place cripples in some scientific way.

Series 1, No. 10, issued for May, 1918, considers the subject, "The Relation of the Short, Intensive Industrial Survey to the Problem of Soldier Re-education." It is written by G. A. Boate, officer in charge of Industrial Surveys of the Invalided Soldiers' Commission in Canada, and describes the methods which are being

evolved there. The Industrial Survey work was started by the Military Hospitals Commission in October, 1917, at Montreal. The necessity was soon recognized of enlarging the range of trades in which disabled soldiers could work. Two ways of accomplishing this have been suggested: the first is to purchase additional equipment and give a greater range of courses in the schools; the second is to begin a systematic intensive survey of industries. Standard industrial survey sheets have been formulated which deal with: (1) the names and information from the chief executive of the concern, (2) the occupation and all the elements which enter into it, such as hours, remuneration, training required, and (3) disabilities. Placement officers coöperate with survey officers and see that the men are moved from the schools into proper industries.

Canada realizes that she has not fulfilled her obligation to her disabled men until they can return to civilian life capable of earning a livelihood and of enjoying life. The work has just been started, but already, through the information gained from industrial surveys, about eighteen men have been placed in suitable industrial establishments for the continuation of their training.

"The Vocational School for Disabled Soldiers at Rouen, France," is the subject of Series 1, No. 11, issued by the Red Cross Institute for May 13. France will have to compete industrially with her enemies after the war, and realizes that her greatest difficulty will be shortage of labor supply. Social justice, the interest of the State, and the happiness of the individual demand that her disabled soldiers be made self-supporting.

The Vocational School at Rouen originated with the Departmental Committee on Technical Instruction of the Seine-Inférieure. The school and workshop method of securing vocational training was considered more advantageous than the apprentice system. The schools already in operation at Lyons were visited and the Rouen school was based upon the information acquired there. A building, which had formerly been a school for girls, was given by the city for this purpose. The money for the equipment and running expenses was collected from gifts and various grants, from the government, and from the income received from the sale of articles made in the shops.

It is necessary, before being admitted to the school, that the men be completely cured of their wounds, and be either discharged from the army or waiting for a discharge. Pensions are not curtailed because of increased earning capacity. Both day pupils and boarders are received. Pupils in the manual trades have every day an hour and a half of instruction in elementary school subjects. Thursday afternoons and Sundays, pupils are free to go where they choose. The School has installed workshops for teaching the trades of shoemaking, tailoring, basketry, clock-making, hairdressing, tinsmithing, bookkeeping, accounting, stenography, and typewriting. There is no fixed length of time for apprenticeship; pupils are supposed to stay until they have become good workmen.

The Committee of the Rouen school undertakes to find each man a well-paying position suited to his capacities. The school has had no trouble in placing its pupils.

TRANSMISSION OF TRENCH FEVER.

SOME time ago, it was noted in the JOURNAL that American soldiers had volunteered to be bitten by trench lice in order to enable the Medical Corps, by this experiment, to determine whether or not trench fever is transmitted by these lice. Sixty-eight American soldiers risked their health for the sake of science and the Army by submitting themselves for inoculation. Two things were established in the investigation. The first was that trench fever is a germ disease; the second, that it is spread by the trench louse.

The men used in the trench fever experiment were chosen chiefly from field hospitals and ambulance organizations, units commonly designated as non-combatant, and were sent to a hospital behind the British front line in January. The first announcement read in part:

"It is no mean thing that these volunteers did in France. To face illness of weeks, with extreme suffering, requires peculiar valor. The average loss of weight for these men was from 20 to 25 pounds. Incidentally the hospital in which the experiments were carried out was shelled by the Germans in the early part of their March drive. It is believed by the Army Medical Corps that the sacrifice of this group of 68 men will in time lead to the protection of thousands of men from the ravages of trench fever."

An editorial statement published in the *Lancet* gives the following official account of the experiment:

"In the research, which was carried out at a stationary hospital of the B.E.F., six medical officers of the American Reserve Corps (Majors R. P. Strong, H. F. Swift, and E. L. Opie, and Captains W. J. MacNeal, W. Baetjer, and A. M. Pappenheimer) were associated with Lieutenant A. D. Peacock, R.A.M.C. Sixty-eight volunteers from the U. S. Army, all of them in robust health, were examined by physical, bacteriological, and serological tests before the investigation began, and means were taken to prevent them from becoming lousy by accident. In the first series of experiments 34 men were inoculated with blood or some constituent element of it from trench fever cases in a febrile stage, and of these 23 developed typical trench fever—viz., 15 out of 16 who were inoculated with whole blood, 5 out of 5 with clear unfiltered plasma, 3 out of 4 with washed corpuseles, none out of 7 with plasma, serum, or ground corpuseles filtered through Berkefeld candles. The incubation period after blood inoculation varied from 5 to 20 days, being longer with blood taken late in the disease. The first and second days of the attack were shown to be the most infectious. Inoculation was carried as far as the fourth generation of the disease. The second series of experiments dealt with the transmission of infection by the louse. Of 26 men subjected to the attentions of *P. corporis* previously fed on trench fever cases, 12 contracted trench fever, the incubation period varying from 16 to 35 days. Apart from taking longer to develop, the disease produced by the louse appeared identical with that produced by direct inoculation of blood. The work is held by its authors to demonstrate that trench fever is a specific entity and not a form of enteric fever, and has definitely added to our knowledge of the etiology of the disease."

The men who so cheerfully volunteered and risked their health in this cause merit the highest commendation.

AMERICAN MEDICAL ASSOCIATION MEETING.

At the recent annual meeting of the American Medical Association, Dr. Arthur Dean Bevan, of Chicago, president, in his address, urged national prohibition for both military and civilian population, emphasized the necessity of each county in the United States sending a quota of 20% of its medical men into army service, and advocated withdrawal of doctors from association with German scientists

after the war. Dr. Bevan paid special tribute in his address to the work of Surgeon-General Gorgas, and called attention to the fact that the army death rate has been less than 10 per thousand in the mobilization camps. In speaking of the elimination of alcohol, Dr. Bevan is reported to have said:

"In the slow evolution of civilization, many great wrongs became so entrenched that it required centuries of education to extirpate them. Among these great wrongs too long tolerated, none has done more injury to mankind than drink. Now the swiftly moving course of events is writing the death warrant of autocracy and rule by 'divine right,' and science and education should eliminate not only plagues and epidemics, but also the curse of drink from the world."

Other speakers at the meeting were Dr. Mayo and Governor Lowden of Illinois.

The house of delegates of the Association have adopted a resolution urging President Wilson to retain Major-General Gorgas as Surgeon-General despite the fact that he will reach retirement age next October. Another resolution calls upon members to further the conduct of the war by confining their prescribing to products owned and manufactured by citizens of this or the Allied countries, whenever the interests of the patients permit. The proposal of the Association, to give women physicians and surgeons engaged in war work the same military rank as male medical officers, has been approved by Major-General Gorgas.

Dr. Justin Godart, chief of the medical mission sent to the convention from France, brought the following message of hope and confidence to the assembled physicians:

"France knows there is a long, hard struggle ahead before we reach victory: but we have complete confidence that we can hold the line until America arrives in force. Then, for complete victory!"

MEDICAL NOTES.

CONTROL OF VENEREAL DISEASE IN ONTARIO.—The province of Ontario, Canada, has recently adopted legislation for the control of venereal disease.

"In its completed state it provides that if any person is under arrest or convicted of any offence of the Criminal Code of Canada or any Ontario statutes, he or she may be examined and, if infected, may be treated as the medical

officers of health may direct; they may be detained or isolated. If the medical officer of health of any municipality has reason to believe that someone is a danger to the community by reason of being infected with venereal disease he may require that person to produce a certificate from a qualified medical man to the effect that he is not infected. If a person fails to do this the medical officer may direct an examination, and if he finds the person infected he has authority to treat the person, detain him, or isolate if necessary. The general principle of the law is, however, away from segregation, and large powers are given to the board of health of the province, in coping with the menace, to make regulations. No person but a duly qualified medical man will be allowed to treat such patients.

WAR NOTES.

LIEUT. GEORGE F. PATTON RECEIVES CROIX DE GUERRE.—Dr. George F. Patton, lieutenant of the Medical Corps from New York, has received the Croix de Guerre for heroism shown during a gas attack. Dr. Patton was with a detachment of a famous regiment when the Germans drenched the position with poison gas. Twenty of the men were overcome. Dr. Patton was safe himself, as he had his mask on at the time. He devoted his most energetic effort to aiding his comrades, but soon found it was impossible to work properly with his mask on. Despite the likelihood of death to follow, he flung off the mask and worked for fifteen minutes, saving the lives of all his patients before he collapsed himself.

BOSTON DOCTORS SENT TO CAMP DEVENS.—Twenty-four officers of the Medical Reserve have been ordered to report to the Commanding General at Camp Devens, for duty with Base Hospital No. 7. This is the Boston City Hospital unit, which was ordered to Camp Devens from Boston for training some months ago. Included among the Medical Reserve officers ordered to duty with Base Hospital No. 7 are several former surgeons of the Boston City Hospital and many graduates from the Harvard Medical School.

Those in active service ordered to this hospital are: Maj. John J. Thomas of Boston, from Fort Leavenworth, Kan.; Capt. Henry W. Jackson, Boston, from Camp Dix; Capt. John H. Lambert, from the Cornell Medical College; Capt. David D. Seannell of Boston, who has been at the Neurological Institute, New York, for a course of training; Capt. Paul Withing-

ton of Boston, from Camp Funston; 1st Lieut. Harold M. Goodwin, 1st Lieut. Robert W. Kispert and 1st Lieut. William R. Ohler, from the medical officers' training camp, Fort Oglethorpe, Ga.; 1st Lieut. Milton J. Longworth, from Hoboken, and 1st Lieut. John H. Reynolds, from Camp Dodge.

In addition, the following of the Medical Reserve Corps have been assigned to active service with the hospital: Maj. Edward H. Nichols, Boston; Capt. Robert J. Kiscock, Boston; Capt. Somers Fraser, Boston; Capt. Walter A. Lane, Milton; 1st Lieut. Martin J. English, Dorchester; 1st Lieut. Archibald McK. Fraser, Boston; 1st Lieut. James J. Putnam, Jr., Boston; 1st Lieut. Frank G. Norbury, Boston; 1st Lieut. Carl T. Harris, Boston, and 1st Lieuts. Paul V. Annadown, Ivan R. Burket and Robert C. Cochrane. Also 1st Lieuts. Frank H. Cushman and Harold L. Peacock of the Dental Reserve Corps have been assigned to Base Hospital No. 7.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending June 22, 1918, the number of deaths reported was 189, against 242 last year, with a rate of 12.57, against 16.34 last year. There were 32 deaths under one year of age, against 37 last year.

The number of cases of principal reportable diseases was: diphtheria, 49; scarlet fever, 17; measles, 183; whooping cough, 40; typhoid fever, 3; tuberculosis, 66.

Included in the above were the following cases of non-residents: diphtheria, 14; scarlet fever, 6; measles, 1; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 2; scarlet fever, 2; measles, 1; whooping cough, 2; tuberculosis, 22.

Included in the above were the following non-residents: diphtheria, 1; scarlet fever, 2; tuberculosis, 2.

NURSES GRADUATED AT LONG ISLAND HOSPITAL.—Twenty-one graduates of the Long Island Hospital Training School for Nurses have received their diplomas.

Brief addresses were made by Lieutenant-Governor Calvin Coolidge, Chairman Thomas A. McQuade of the trustees, Dr. Allan J. McLaughlin, chairman of the State Health Department, Dr. Charles E. Donlon, superintendent of the hospital, and Dr. John Mason Little.

Mr. McQuade gave the young women their diplomas for a two years' course.

CHELSEA HEALTH REPORT.—The annual report of the Board of Health of the city of Chelsea has been submitted for the year 1917. The various licenses which have been granted are enumerated. The conservation of child life has been handicapped by lack of money, and it is urged that a sufficient appropriation be granted for the coming year to employ a nurse for this work. The infant death rate has been 3.02 per thousand. Statistics concerning diseases and deaths are given. The reports of the health officer, the milk inspector and bacteriologist, the nurse, and tables showing the results of the school inspection and the mortality statistics for the past year, are included.

The Massachusetts Medical Society.

ANNUAL MEETING OF THE COUNCIL. JUNE 18, 1918.

The annual meeting of the Council was held in John Ware Hall, Boston Medical Library, Tuesday, June 18, 1918, at twelve o'clock, noon. The President, Dr. Samuel B. Woodward, was in the chair and the following 116 Councilors present:

BARNSTABLE.	HAMPSHIRE.
C. W. Milliken, M.N.C.	J. G. Hanson,
	A. G. Minshall, M.N.C.
BERKSHIRE.	
E. A. Kennedy, M.N.C.	MIDDLESEX EAST.
BRISTOL NORTH.	E. S. Jack.
W. H. Allen, V.P.	G. N. P. Mead.
W. O. Hewitt.	F. L. Smalley.
F. A. Hubbard, M.N.C.	MIDDLESEX NORTH.
BRISTOL SOUTH.	W. B. Jackson.
E. F. Cody.	E. G. Livingston.
W. A. Dolan.	M. A. Tighe.
R. W. Jackson.	MIDDLESEX SOUTH.
ESSEX NORTH.	G. T. Tuttle, V.P.
F. E. Sweetsir, V.P.	M. H. Bailey.
I. J. Clarke, M.N.C.	F. E. Bateman.
G. E. Kurth.	E. H. Bigelow, C.
E. H. Noyes.	Richard Collins.
ESSEX SOUTH.	C. H. Cook.
C. H. Bangs.	C. A. Dennett.
R. E. Foss.	John Duff.
H. K. Foster.	G. W. Gay, Ex-P.
W. T. Hopkins.	A. A. Jackson.
J. F. Jordan, M.N.C.	S. R. Lancaster.
G. M. Kline.	Edward Mellus.
W. G. Phippen.	C. E. Mongan.
E. Poirier.	C. F. Painter.
R. E. Stone.	B. H. Peirce.
FRANKLIN.	F. W. Rice.
J. W. Cram, M.N.C.	E. H. Stevens, M.N.C.
HAMPDEN.	A. K. Stone, Treas.
F. H. Allen.	F. R. Stubbs.
T. S. Bacon, M.N.C.	G. L. West.
Helen T. Cleaves.	G. W. W. Whiting

NORFOLK.

W. H. Bennett.
D. N. Blakely.
A. N. Broughton.
W. L. Burrage, Sec.
G. W. Clement.
Samuel Crowell.
W. C. Emery.
H. C. Ernst, C.
C. S. Francis.
T. F. Greene.
G. W. Kaan.
Bradford Kent.
T. J. Murphy, M.N.C.
D. T. O'Keefe.
M. V. Pierce.
H. H. Powers.
J. W. Pratt.
S. H. Rubin.
Victor Safford.
R. D. Schmidt.
H. F. R. Watts.

NORFOLK SOUTH.

C. S. Adams.
G. H. Ryder, M.N.C.

PLYMOUTH.

C. E. Lovell.
A. A. MacKeen.
A. E. Paine, M.N.C.
F. G. Wheatley.

SUFFOLK.

J. B. Blake, V.P.
J. L. Ames.
G. W. W. Brewster,
M.N.C.

SUFFOLK (Continued).

J. A. Cogan.
F. J. Cotton.
E. G. Cutler.
Albert Ehrenfried.
C. M. Green, C.
W. C. Howe.
F. L. Jaek.
R. W. Lovett.
J. L. Morse.
Anna G. Richardson.
Stephen Rushmore.
G. G. Sears.
G. C. Smith.
Mary A. Smith.
P. M. Smith.
R. M. Smith.
D. H. Walker.

WORCESTER.

W. L. Johnson, V.P.
F. H. Baker.
W. P. Bowers, Ex-P.
J. C. Gênéreux.
David Harrower, M.N.C.
E. L. Hunt.
A. G. Hurd.
G. O. Ward.
F. H. Washburn.
C. D. Wheeler.
S. B. Woodward, Pres.

WORCESTER NORTH.

E. L. Fiske, M.N.C.
J. G. Henry.
A. P. Mason.
E. A. Sawyer.

Camfield W. Chase, of St. Petersburg, Florida.
Mary Gordon Libby, of Newport, New Hampshire.
Freeman Augustus Tower, of Derry, New Hampshire.

For the Committee on Membership and Finance
CHARLES M. GREEN, *Chairman*.

The Chairman of the Committee on Membership and Finance read the vote of the Council February 6, 1918, concerning the payment of the dues of the Fellows who were in the Government service. He explained that the District Societies cannot be forced to pay these dues, and that it is with them a matter of honor. If 700 Fellows are in the service and do not pay their dues, the loss to the Society would be \$3500. At present the running expenses of the Society exceed the appropriations. He thought that the District Societies must either give up their dividends, the annual dues must be increased from \$5.00 to \$6.00, or the Society must face a deficit, and he hoped that the districts would pledge themselves, at such a representative meeting as the annual meeting of the Council, to reimburse the Society. The Treasurer said that only one district had refused to pay the dues of its Fellows in the service. Five have paid and one district has taken no action. Dr. Hopkins of Essex South said that his district had voted to increase the dues. Dr. Rockwell of Hampshire said that a similar action had been taken by his district. Dr. Green explained that the bills for the present year had been sent out already and that in his opinion no action as regards increasing the dues need to be taken at the present time. Dr. Ward of Worcester said that he wanted the matter decided for next year now, and he made the following motion: *Moved*, That the Treasurer be authorized to make out his bills for the annual dues for the year 1919 for the amount of \$6.00. The motion was opposed by Dr. Crowell of Norfolk, Dr. Mason of Worcester North and Dr. Cram of Franklin. The motion being put, was carried by a voice vote.

The report of the Committee on Ethics and Discipline was read by the Secretary and accepted. (See Appendix for Report.)

Dr. H. C. Ernst presented the report of the Committee on Medical Education and Medical Diplomas, and it was accepted and placed on file. (See Appendix.)

Dr. Bowers read the report of the Committee on State and National Legislation, and it was accepted with applause. Dr. W. L. Johnson spoke in appreciation of the work Dr. Bowers had done at the State House in advancing desirable legislation and opposing vicious legislation.

Dr. E. H. Bigelow presented the report of the Committee on Public Health and it was accepted. (See Appendix.)

The reports on the petitions of J. T. L. Brennan and J. E. Clark for restoration to the privileges of fellowship were reported upon favorably by the Committees to which they had

The reading of the records of the last meeting was dispensed with by vote. The names of the Nominating Committee were read by the Secretary by districts and fifteen principals and alternates retired. Dr. Charles M. Green presented the report of the Committee on Membership and Finance as to Membership, and it was accepted and its recommendations adopted.

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

1. That the following named Fellow be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

Irving Sylvester Fogg of Norwood.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Rufus Anderson Kingman, of Cambridge (11 Storey Street), with remission of dues to the amount of \$5.

Walter Walker Palmer, Presbyterian Hospital, New York, with remission of dues to the amount of \$5.

3. That the following named Fellows be allowed to change their district membership, without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

William Allen Brooks, from Middlesex South to Suffolk.
Lewis Webb Hill, from Norfolk to Suffolk.
Eugene Robert Kelley, from Norfolk to Suffolk.
Victor Isaiah Shapira, from Norfolk to Suffolk.
Charles Melville Whitney, from Middlesex South to Suffolk.

4. That the following named Fellows be deprived of the privileges of fellowship, under the provisions of Chapter I, Section 8, of the by-laws:

been referred, and both reports were accepted by the Council.

The petition of T. F. Carroll for restoration was referred to the following committee:

G. W. Kaan,
G. H. Francis,
B. Blanchard.

At the close of the meeting Dr. Kaan reported for his Committee, recommending the restoration of Dr. Carroll under the usual conditions. The petition of E. R. Gookin for restoration was referred to the following committee:

H. F. R. Watts,
W. C. Emery,
J. E. Hallisey.

At the close of the meeting Dr. Watts reported for his Committee recommending the granting of the petition of Dr. Gookin under the usual conditions.

The Treasurer stated that his working balance in the New England Trust Company was last year (1917) \$10,960, and this year (1918) \$7,639, with a difference of \$3,321. The dinner last year cost nearly \$3,000, leaving a balance of \$321, so that it is probable that we shall be able to run without a very large deficit this year, provided that the men who are not in service pay their dues to the Society. He read the following letter from Horace C. Hartshorn, Public Accountant:

BOSTON, June 14, 1918.

DR. ARTHUR K. STONE, *Treasurer*,
Massachusetts Medical Society,
Boston, Mass.

Dear sir:

In the report which I made for you as Treasurer of the Massachusetts Medical Society, December 31, 1917, I put on the books the investments and funds which in the past had never been shown on the annual statements rendered by the Treasurer of the Society. Prior to 1917, the Treasurer's report showed simply an analysis of the receipts and disbursements, with the cash on hand at the beginning and end of the year, but no statement of the endowment funds or investments. In order to show the true condition of the Society, I have opened accounts with the different investments and endowment funds.

The difference between the assets and liabilities, December 31, 1917, showed a surplus of \$26,932.35. The year 1917 showed that the expenses exceeded the income by \$3,727.77, which would show that the surplus January 1, 1917, was \$30,660.12. Through mistake in setting up these figures, I showed this surplus on the statement as \$23,204.58, but the surplus balance at the end of the year was correctly stated as \$26,932.35.

On account of Dr. Buckingham's death, which occurred in December, 1916, the statement of the year 1916 was made up without balancing the books, which would account for the small difference between the surplus shown on that report and the surplus of \$30,660.12 on December 31, 1916, as shown by the books.

Yours very truly,

H. C. HARTSHORN.

The Librarian reported verbally that he had performed his duties as in the past.

Dr. George W. Gay presented a report of ten years' experience with the Malpractice De-

fense Act. (See Appendix.) He moved: That no new cases for defense in suits for alleged malpractice be accepted by the Society until so ordered by the Council. The motion was discussed and put to vote and lost by a rising vote.

The Secretary read the following letter from Dr. E. H. Bradford, Chairman of the Committee on the establishment of a Chair of Military Medicine:

BOSTON, May 15, 1918.

A circular was sent out to the various district boards soliciting subscriptions as directed by the Society. A small amount of money has been received, but this is not as yet sufficient for the establishment of a professorship. Owing to the exigencies of the war, it seems inadvisable to take any further steps to raise money. It is suggested that the amount already contributed be held. The interest of the money can be used, if necessary, to aid in collecting facts as to military medical history, and it is suggested that the President of the Society consider the advisability of appointing a lecturer who may prepare himself, collect the necessary data for a report on the subject, and possibly later for one or more lectures to be given at the Harvard Medical School, open to members of the Society.

E. H. BRADFORD, *Chairman*.

The Treasurer, in reply to questions, announced that only one subscription of \$300 had been received thus far. On motion by Dr. Ernst, it was *Voted*: That the one contribution be returned to the donor.

Dr. Albert Evans presented the report of the Committee to Coöperate with the State Board of Labor and Industries, and it was accepted by vote. (See Appendix.)

Dr. C. Morton Smith reported for the Committee on the Control of Venereal Diseases. (See Appendix.)

Dr. A. K. Stone reported progress for the Committee on Health Insurance (see Appendix), and Dr. Broughton reported that the Committee on Workmen's Compensation Act had held no meetings, due to the present situation as regards accident insurance.

The following vacancies in the offices of the general society were filled by the Council under the provisions of Chapter IV, Section 4, of the By-Laws:

BRISTOL NORTH, Commissioner of Trials, C. S. Holden; Censor, T. F. Clark.
ESSEX SOUTH, Supervisor, W. G. Phippen in place of G. E. Tucker.
HAMPTON, Supervisor, T. S. Bacon in place of G. L. Woods.
WORCESTER NORTH, Commissioner of Trials, F. H. Thompson, Sr.

Dr. A. E. Paine reported for the Nominating Committee that the Committee recommended unanimously the reelection of the officers of the past year, and nominated in addition for Orator Samuel Crowell of Dorchester. The ballots being distributed and counted, it appeared that 79 ballots had been cast for the following ticket and they were declared elected:

President, Samuel B. Woodward, Worcester; Vice-President, George P. Twitchell, Greenfield; Secretary, Walter L. Burrage, Boston; Treasurer, Arthur K. Stone, Boston; Librarian, Edwin H. Brigham, Brookline; Orator, Samuel Crowell, Dorchester.

The President nominated and the Council appointed these standing committees for the ensuing year:

OF ARRANGEMENTS.

J. L. Huntington, R. H. Miller, C. H. Lawrence, Jr., Donald Macomber, A. W. Reggio, J. B. Swift.

ON PUBLICATIONS AND SCIENTIFIC PAPERS.

E. W. Taylor, R. B. Osgood, F. T. Lord, R. M. Green, A. C. Getchell.

ON MEMBERSHIP AND FINANCE.

C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.

ON ETHICS AND DISCIPLINE.

J. A. Gage, J. W. Bartol, Henry Jackson, T. J. Robinson, David Cheever.

ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS.

H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.

ON STATE AND NATIONAL LEGISLATION.

S. B. Woodward, F. G. Wheatley, W. P. Bowers, E. H. Stevens, A. R. Crandell.

ON PUBLIC HEALTH.

E. H. Bigelow, W. I. Clark, Annie L. Hamilton, E. P. Cody, M. V. Safford.

Adjourned at 1.55 p.m.

WALTER L. BURRAGE,
Secretary.

APPENDIX TO PROCEEDINGS OF THE COUNCIL, JUNE 18, 1918. REPORTS OF COMMITTEES.

REPORT OF THE COMMITTEE ON ETHICS AND DISCIPLINE.

The meetings of the Committee have been necessarily fewer than in former years owing partly to the demands made upon the members for war work, and partly owing to fewer complaints brought to the attention of the Committee. Apparently the more vital interests affecting the Society during the year have distracted the attention of the members from those minor differences of opinion that so often call for adjudication by your Committee.

The relatively few complaints have had to do with the old criticism against advertising and personal differences between fellow practitioners.

One new question involving a principle related to the right of the doctor employed by an accident insurance company assuming care of an injured patient while he was under the immediate care of his own family physician. The Committee held that the rights of the private practitioner should be preserved, as he had assumed personal responsibility for the care of the case, and that the contract doctor should not treat the case until the attending physician had been consulted in the matter.

Some cases awaiting a judicial discussion have been placed on file.

The work of the Committee has been faithfully attended to by the members, with the generous co-operation of our Secretary, and the Society is to be congratulated that so few infractions of the code of ethics have appeared during the year.

For the Committee on Ethics and Discipline,

J. ARTHUR GAGE, *Chairman.*

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS.

On behalf of the Committee on Medical Education and Medical Diplomas, I beg to present the following report:

Exercising its authority to rule upon diplomas from schools not on the accepted list and presented by candidates for fellowship in the Massachusetts Medical Society, two cases have been disposed of effectively during the past year.

I may repeat again the comment that was made in our report of last year that the feeling expressed by certain of the Fellows that the adoption of the vote of June 9, 1914, in accordance with which the Committee has the power, under certain conditions, to recognize a medical degree coming from a not-recognized medical school, would result in the admission of a considerable number of graduates of such schools, has not been realized.

The safeguards thrown about the power thus granted have resulted in affirmative action by the Committee on the applications of but ten individuals since the passing of the vote. Every one of these applicants has been highly recommended by his neighbors, and evidence has been presented in each case showing that he would be a desirable member of the Massachusetts Medical Society.

The possibility of securing action by the Committee as a whole is small. Each member is engaged in service of one sort or another. At least three are in the medical military service, and away from home more or less permanently. The others are likely to be called upon for frequent absences. It is fortunate, therefore, that comparatively little work requiring organized action has occurred during the past year.

A question has been raised by a not-recognized school in another city as to its being admitted to the accepted list of the Massachusetts Medical Society. At the moment, it has not seemed possible to take any action in this matter, in spite of the fact of the presentation of a strong supporting letter from the Bureau of Medical Education and Licensure of the State in which the institution is situated.

The Chairman of your Committee, in response to a request from the President of the Society, appeared at the hearing at the State House on several bills that seemed to be of importance.

The matter of principal interest, however, has seemed to be the meeting of the Council on Medical Education of the American Medical Association, the Federation of State Medical Boards, and the Association of American Medical Colleges.

By far the most important matter brought up at this meeting was the discussion in regard to the methods for supplying the needs of the Medical Department of the Army that ought to be adopted by the various medical schools.

The Chairman of the Council on Medical Education, as part of his opening address, and under the title of "Some Problems in Medical Education Resulting from the War," very strongly urged the speeding up of the graduation of medical students by continuous instruction, summer and winter, in such a way as to condense four years' work into three, and thus graduate the medical student after three years' continuous work.

A vote supporting this recommendation was secured at the meeting of the conference on medical education, largely, your Chairman is convinced, by reason of the belief among the audience that such a procedure was desired by the Surgeon-General.

It is true that the Chairman of the Council on Medical Education, in reading the paper, made the definite statement that parts of the plan suggested were unofficial and his own, but that some parts were supported by the office of the Surgeon-General.

It is always difficult, of course, for an audience to make such differentiation.

Certain steps were taken to secure support for this measure at the meeting of the Association of

American Medical Colleges at which, also, a vote recommending the action suggested was secured through the Chairman of the Committee of the Council on Medical Education.

An attempt was made to guard this vote by inserting the proviso: "If this can be done without lowering the standard of medical education."

This action ignores the experience of the British and Canadian medical schools, as was stated in the discussion.

Desiring to have exact information in this matter, I wrote to friends associated with the medical schools of McGill and Toronto universities. One of them replies from Montreal as follows:

"Before replying to your letter of the twentieth, I have talked the matter over with Mr. Scone, our Registrar, and thus made sure the information I now give you is correct.

"At first, we tried the 'no vacation' plan, and graduated a class early in January, 1916, which was probably the very poorest class, as a whole, that ever graduated from McGill. Since that time, we have arranged our course, as has, also, Toronto, after consultation with the Military Headquarters' Staff of Ottawa. As a result, we now start our final year on August 15, and graduate them on April 1 following. The other years follow the usual course, starting October 1, and lasting into June following.

"The opinion of our teaching staff is that even the present course is poorer than that given before the outbreak of the war.

"The military authorities, both British and Canadian, are very strongly of the opinion that nothing must be permitted that will lower the standard of medical men entering the army.

"The present arrangement seems to be satisfactory to McGill and Toronto, and perfectly so to the military authorities, with whom our relations are most cordial."

This is so exactly the same sentiment, and the experience and present work of Toronto is so exactly the same as that of McGill, that this letter may be taken as expressing the position of Toronto equally well. In other words, at the conference of the Council on Medical Education, and at the meeting of the Association of American Medical Colleges, a vote was passed favoring action directly opposed to that carried out by our medical neighbors as the result of their experience.

I am glad to say that this method of condensation has met with the disapproval of the Faculty of the Harvard Medical School, and that, unless some greater urgency is brought out than has as yet been the case, there will be no greater speeding up of the graduation of the students at that school than is represented by beginning the fourth year earlier than the usual term.

A second object of interest and of discussion in which your Chairman took an active part was as to what might be done to improve the present medical curriculum to prepare better the medical students for the military duties that are certainly before the majority of them.

As this Council may not be aware—at the present moment all medical students are sworn into the Service, and might be mobilized at once. They are, however, detailed to the different medical schools to pursue their medical education. This in order to supply the need that is pressing, and will become more so in the near future.

In the discussion of this matter, two suggestions were made by me, that came as the result of a conference with the Department Surgeon in the Department of the Northeast, and with the surgeon in charge of infectious diseases, in Washington.

One of these recommendations is that there should be at the close of the curriculum a review laboratory course in which the students should be made

reasonably familiar with the most modern laboratory procedures that have been shown to be of such vital importance in the various cantonnments and posts.

It has even been suggested that this course should be required of all students so that they would all have a familiarity with what can be done in the laboratory, although, of course, not all are to be laboratory workers.

A second and important move, as it seems to me, is one that, at present, I have no knowledge is to be carried out. It is the giving to each medical student a definite amount of military training. The need for this was much impressed upon me in an inspection tour which I made in company with the Department Surgeon during the past winter. Much of the difficulty that did exist, certainly much of the confusion, lay in the fact that many of the young officers did not know the necessary routine of their duty. Much of it is a routine of discipline, and of paper work, so called, which must be carried out in order that things may run smoothly.

By far the best time for such instruction as is indicated is the recess between the first and second years of medical study. During this time the medical student has little to occupy himself. He has not reached a sufficient development to make observations in out-patient clinics of value. On the other hand, the discipline and training which he might receive would be of great importance.

H. C. ERNST, *Chairman.*

REPORT OF THE COMMITTEE ON STATE AND NATIONAL LEGISLATION.

The Committee on State and National Legislation presents the following report for the year ending June, 1918:

By reason of joining the Medical Reserve Corps, Dr. J. S. Stone and Dr. W. H. Robey, resigned from the Committee and Dr. Edmund H. Stevens and Dr. Arthur R. Crandell were appointed to fill the vacancies.

Early in the year the President entered upon an active campaign to promote support from the auxiliary committee, and secured assurances from 51 members of loyal coöperation with the central body.

The President was led to this course by the long-accepted suspicion that the failure to secure legislative endorsement of measures advocated by the profession was due, in part, to the lack of intensive and coördinate effort by physicians throughout the Commonwealth, as well as the inability of the lay mind always to realize the value of medical advice in state affairs.

The inadequate protective features of the vaccination law had so often been demonstrated in this State that the President felt that the unusual conditions now existing demanded further legislation to protect the people from smallpox, and a thorough canvass of the State was made to ascertain the attitude of influential people toward a plan to strengthen the law. The auxiliary committee enthusiastically responded to the call for assistance, and reported a favorable attitude on the part of a majority of the Legislature.

Every officer in charge of educational institutions throughout the State, not under the protective features of the law, with one exception, endorsed the bill which had been drawn.

The proposed measure provided for compulsory vaccination of all pupils in private, or other schools, not covered by the existing law.

This work involved voluminous correspondence and several interviews in order to make the purpose of the bill clear.

Although this campaign was carefully planned and apparently thoroughly prosecuted, in some mysterious way the bill, which was to have been presented in the House, was taken in charge and presented to the Senate by a member of that body, and was defeated by an overwhelming vote. Why this method

of presenting a House bill to the Senate was adopted has never been explained, and puts a heavy responsibility on the Senator who, without conference with the proponents of this bill, assumed the right to act as sponsor for the measure. This defeat is another evidence of the difficulty sometimes encountered in attempts to secure beneficial laws, and demonstrates that the recommendations of the officers of this Society sometimes fail to secure legislative support. There is, however, reasonable ground for the claim that this campaign has been of value in calling attention to the need of a better law, and in the future your Committee may find effective support, for the almost unanimous endorsement of prominent educators shows that many intelligent people are hopeful of better laws.

The other bills which were carefully considered by your Committee are as follows:

LIST A. APPROVED BY THE COMMITTEE.

HOUSE BILL No. 751.

Relating to licensing of dispensaries. *Enacted.*

HOUSE BILL No. 612.

Relating to incorrigible tuberculosis patients. *Rejected.*

HOUSE BILL No. 559.

Relating to school dentists. *Referred to next General Court.*

HOUSE BILL No. 206.

Relating to increased fee for medical registration. *Enacted.*

HOUSE BILL No. 207.

Relating to fees for certificates for physicians and nurses. *Rejected.*

HOUSE BILL No. 162.

Relating to recommendation of Board of Education for a director of physical education. *Rejected.*

HOUSE BILL No. 92.

Providing for physical examination of convicts. *Referred to next General Court.*

HOUSE BILL No. 210.

Providing for physical examination of prisoners. *Enacted.*

HOUSE BILL No. 212 (Later changed to 1298 and 1299).
Relating to morbidity reports of cases of gonorrhea and syphilis. *Enacted.*

HOUSE BILL No. 1024.

Relative to further supervision of feeble-minded persons. (Petition of B. L. Young.) *Next General Court.*

HOUSE BILL No. 1025 (Redrafted as House Bill 1491).

Providing for a special commission to investigate methods of control, custody and treatment of defective delinquents. *Enacted.*

SENATE BILL No. 24.

Providing for the appointment of women on boards of health. *Leave to withdraw.*

SENATE BILL No. 70.

For uniformity in exemption certificates relating to vaccination. *Enacted.*

SENATE BILL No. 1026.

Providing for the study of mental conditions of certain people brought before courts. *Enacted.*

LIST B. OPPOSED BY YOUR COMMITTEE.

HOUSE BILL No. 1137.

Relating to certain regulations for feeble-minded. (Petition of Mary Hubby). *Leave to withdraw.*

HOUSE BILL No. 65.

Relating to medical and surgical care of pupils in Public Schools, at public expense. (Introduced by Senator Washburn.) *Next General Court.*

HOUSE BILL No. 294.

For the abolition of trustees of hospitals for consumptives. *Referred to next General Court.*

HOUSE BILL No. 909.

That members of the Board of Registration of Nurses shall not be reappointed. *Leave to withdraw.*

HOUSE BILL No. 1126.

Insuring the purity of vaccine virus. *Leave to withdraw.*

HOUSE BILL No. 642.

Relating to health insurance. (Referred to Committee on Health Insurance.) *Leave to withdraw.*

HOUSE BILL No. 1022.

Providing for an institution of refuge. *Leave to withdraw.*

SENATE BILL No. 13.

Providing that certain physicians be allowed to apply for registration. (Petition by Ex-Governor Bates). (This bill was in the interest of a notorious unlicensed practitioner who had been obliged to suspend practice by reason of restrictive measures enacted the previous year.) *Leave to withdraw.*

In the hearings on the bill for insuring the purity of vaccine virus, Professor Ernst and Dr. Cody gave valuable assistance. This bill is an expression of the purpose, under a misleading title to abolish vaccination.

Emergency action was taken by the President or Secretary whenever it was impracticable to secure a meeting of the Committee on the following measures:

APPROVED.

HOUSE BILL No. 209.

To promote the practice of school hygiene and the health and welfare of school children. *No legislation.*

HOUSE BILL No. 213 (Changed to House Bill 1385).

Relative to prescribing and compounding of drugs for cure or alleviation of venereal diseases. *Defeated.*

HOUSE BILL No. 1023.

To provide for the temporary care of persons suffering from mental diseases, who are in the military or naval service of the United States. *Enacted.*

HOUSE BILL No. 1259.

Relative to prohibiting the conveying of drugs and other articles by and to inmates of public institutions. *Enacted.*

HOUSE BILL No. 1387.

Based on communication of the Governor in response to recommendations of the State Department of Health, relating to the control of venereal diseases, and providing for an appropriation not exceeding \$30,000. *Enacted.*

DISAPPROVED.

HOUSE BILL No. 1047.

Relative to a system of non-contributory old age pensions. *Leave to withdraw.*

HOUSE BILL No. 364.

Based on petition of trustees of Massachusetts College of Osteopathy that said college be authorized to grant additional degrees. *No legislation.*

SENATE BILL No. 17.

Petition to abolish the Commission for the Blind.

and that the office of Commissioner for the Blind be established. *No action.*

SENATE BILL No. 71.

Providing for the omission of certain words relating to midwives. *Leave to withdraw.*

SENATE BILL No. 166.

For the prevention of reappointment of members of the Board of Registration in Medicine. *Leave to withdraw.*

SENATE BILL No. 185.

On petition of Katherine Fenelon that legally chartered medical schools be exempt from educational restrictions of the dental law. *Leave to withdraw.*

Another matter may properly be included in this report, for, as a result of sworn affidavits presented to the Attorney-General to the effect that a certain medical college had extorted unwarranted sums of money from some of its students, who also claim that this institution failed to furnish proper medical instruction, the Attorney-General, in his annual report, recommended that the charter granted to this school be revoked.

The Joint Committee on Education conducted a hearing, on the recommendation of the Attorney-General, at which the Attorney-General, the Assistant District Attorney, the Secretary of this Committee, and several students and graduates of the school in question, gave testimony.

Although it seemed to be fairly well demonstrated that this school was open to severe criticism, that, after investigations by the Council on Medical Education of the American Medical Association and others, there had been published statements to the effect that it is not a reputable school, and further, that 39 states in the Union will not accept applications for registration from its graduates, also that its graduates are not accepted in the Medical Corps of the Army or Navy, the Committee before which the report was heard seemed to be favorably impressed with statements made by friends of the school. The supporters of the recommendations of the Attorney-General presented facts. The defendants presented the old arguments in favor of the poor boy and introduced a considerable amount of invective and vituperation which seemed to appeal to the committee. The committee was asked to visit the school, but declined, and dodged the responsibility by referring the matter to the next General Court.

The representatives of this institution have always been in the front ranks of opposition to legislation designed to elevate the standards of medical education in Massachusetts, and the institution now continues to have state support although an abnormally large proportion of its students fail to secure registration.

The experiences of the past year show that there are still people in this Commonwealth who are ready to break down the barriers to incompetent practice, and believe in so-called medical freedom.

These people want low grade medical schools to exist, and are willing to have young people induced to enter upon a course of study which cannot properly prepare them for the practice of medicine, and are not aroused to the responsibility of exercising state protection, both for the people and for credulous students.

Some want the unttaught midwives licensed—the charlatan to have the same privileges as the scientific practitioner, and practically all protective measures abolished, and it matters not how illogical a measure may be, it seems to secure support from some members of the Legislature.

These conditions show that The Massachusetts Medical Society must carefully watch legislative activities and try, by all honorable means, to lead the law makers to enact only useful measures.

In all cases where the Committee felt that its influence was needed, either the President of the Society

or the Secretary of this Committee appeared at the hearings and stated the attitude of the Society.

WALTER P. BOWERS, *Secretary.*

REPORT OF THE COMMITTEE ON PUBLIC HEALTH.

In attempting to carry on the work outlined in the report of this Committee last June, we were handicapped by the absence in France of two members, Dr. Clark and Dr. Lee. The Committee continued to benefit by the original gift to this Society for public health work. The administration of the gift by the Committee on Public Health being under the direct supervision and subject to the approval of a committee consisting of the President, Secretary and Treasurer of the Massachusetts Medical Society, with the Chairman of the Committee on Membership and Finance and the Chairman of the Committee on Public Health.

A school for health officials was contemplated last year. The rapid progress of preventive medicine is continually bringing new activities and new technical methods into public health work. It is, therefore, highly desirable that the public health officials in each community should have an opportunity once a year to discuss these new procedures, the present work of the various health organizations and their own local problems with experts in the various fields. Even of greater value is the inspiration from contact with men and women working in public health activities who have put away all pride of opinion and reputation, forgetting themselves in their work for the common good. These workers share the heroic spirit of our men in khaki, who are ready to sacrifice all in defense of our homes and liberties; so they fight for healthy homes in Massachusetts.

The additional burden which the war is placing on the civil population has brought a recognition of the importance of public health work never before realized. Public hygiene, the scientific care of the people at home, will be an important factor in the successful conduct of the war and the recovery from its blighting influence.

Mr. E. J. Ingham, C. P. H. agent for the Committee, secured the coöperation of the State Department of Health, the Massachusetts Association of Boards of Health and the United States Public Health Service in holding a four-day session of the convocation and school for public health officials last September. Harvard and Tufts medical schools and the Massachusetts Institute of Technology opened their doors to the sessions of the schools. Leading men and women in health work lectured and held clinics without compensation. Your Committee gratefully acknowledges its obligation to all who contributed to the program, insuring its success. The attendance included health officials from the Berkshires to the Cape.

Many other States hold a similar conference and school for health officials, and a few of them are assisted by the State laws requiring each town to pay the expenses of a delegate. Because of the coöperation of the organizations named above, the leadership which Massachusetts has always maintained in public health work and the large number of public health experts within her borders, our public health school equals or surpasses in quality that of any other State.

It seemed wise to hold the session of the school this year the last week of May. Mr. Ingham left us last fall to act as district health officer in Southern California. Mr. C. E. Turner, instructor in the Massachusetts Institute of Technology, who had made a study of health administration in Maine, was chosen to succeed Mr. Ingham. He now, in turn, leaves us, being appointed Sanitarian by the Shipping Board at Washington, having under his charge 55,000 workmen in the navy yards of the Northeastern District.

The total registration of the second session of the school was 225. Thirty-nine towns and 22 of the 38 cities in Massachusetts were represented—61 cities and towns. Seven other States and two foreign countries also had representatives. The program was carried out exactly as scheduled, every speaker being present, all exercises taking place on time. The representatives of many towns gave warm expression to their appreciation of the helpful meetings. The representative from Mansfield asked particularly that the gratitude of his town be expressed in the official record.

Memorial day evening, Dr. W. W. Peter, Secretary of the Joint Council of Public Health Education in China, who is leading the public health crusade in that country, gave a wonderful lecture. Dr. Reiser, late United States Commissioner of Health in the Philippines, after hearing Dr. Peter, said: "It is the best health talk I ever heard." Dr. Peter goes at once to France for three months, under the Y. M. C. A., in the interest of half a million Chinese laborers. President Wilson, after considering the claims of the Chinese in France, has written Dr. Peter, urging him to return to China and continue his labors for the physical regeneration of that great people.

This year, as last, your Committee is indebted to many organizations and experts in health and sanitary matters for generous cooperation, especially to Professor Sedgwick and the Massachusetts Institute of Technology. Professor Sedgwick gave freely of his time and wide knowledge of public health administration to the Committee. Huntington Hall and the Massachusetts Institute of Technology were generously opened to the sessions of the school. Memorial Day evening the reception and rest rooms were placed at the disposal of the school for a reception to Dr. and Mrs. Peter, Captain Dr. René Sand, member of Belgian Mission on Industrial Management and Lecturer on Social Medicine, University of Brussels, and Passed Assistant Surgeon A. J. Lanza, United States Public Health Service, Washington, D. C.

Governor McCall and Mayor Peters spoke kind and appreciative words on the opening day, bringing the greetings of the State of Massachusetts and of the City of Boston. Our agent, Mr. Turner, had full charge of the school, and to him is due all the credit of the perfect working out of the program.

The success of the second session of the school for health officials was so marked that it seems to be well established as a permanent factor in the health work of the State.

Your Committee feels with increasing force the advantage of towns and groups of towns employing a full time health agent. In school affairs the appointment of a full time superintendent as executive officer for each town or group of towns with an unpaid school board is the well established policy of the State. Is it less important that the health laws should be executed by trained men? The physicians of Massachusetts, with the opportunity they have to mould public opinion, can be of the greatest service in bringing this plan into effect throughout the State, giving medical supervision to every home in the Commonwealth.

The Council on Health and Public Instruction of the American Medical Association, through Dr. Charles E. Chapin, Commissioner of Health of Providence, R. I., published an exhaustive report on State public health work, based on a survey of State boards of health. By that report the Massachusetts Department of Health leads all the other States of the Union. Let us give our State Department of Health hearty support that it may long maintain its present leadership. Let us support it in the difficult work of controlling venereal diseases so gravely menacing our civil and military population.

The Committee would thank the President, members and officers of the Massachusetts Medical Society for counsel and encouragement in their work. We gratefully acknowledge our debt to the generous

donors of the fund which has made our work possible.

ENOS H. BIGELOW, *Chairman*,

EDMOND F. CODY,

ANNIE LEE HAMILTON, *Secretary*.

TEN YEARS' EXPERIENCE WITH THE MEDICAL DEFENSE ACT.

The Medical Defense Act of the Massachusetts Medical Society, having for its object the furnishing of counsel to any resident member who may wish such assistance in suits for alleged malpractice, has been in force ten years. A brief report of the work may have some little interest for the Council. Having been responsible for the introduction of the act among the activities of the Society, the President and Secretary have invited me to present a résumé of the service, which is based upon data furnished by the Secretary.

Ninety-four cases of threatened suit for alleged malpractice have been brought to the Secretary for advice and assistance. He has also been consulted in numerous other instances in relation to cases that have not come to any definite action.

Twelve cases have come to trial. Verdict was for defendant in every instance. A new trial was granted in one case. Nineteen cases remain in the hands of our attorney. Some of them are inactive and very likely will never be heard of again. Others may come to trial in the near future. In eleven instances the cases have become outlawed, have defaulted or have been dropped. Applications for defense in fourteen cases of threatened suit are on file with the Secretary. In nineteen cases, suits for alleged malpractice have been threatened, but no applications for defense have thus far been received. In six cases a settlement was brought about through the advice of our officers and attorney. Applications for defense have been refused in three instances as they did not fall within the scope of the act. Two were for alleged libel and one for an over-charge in a bill.

Nine cases were defended by insurance companies, and one by defendant's attorney.

As might be expected, fractures—13 in number—head the list of complaints for alleged malpractice. Ten charges related to confinements, one being a case of "twilight sleep." Six cases had to do with burns by hot water bottle or the x-ray. Four were for alleged unjust commitment to an insane hospital.

Among the various charges for malpractice may be mentioned the following: Unskillful treatment of dandruff, barber's itch, scabies, spinal meningitis, appendicitis, enuretic and suspending the uterus, hernia following laparotomy, failure to remove a fish-bone from the throat, transmission of scarlet fever, faulty diagnosis of fracture of hip, cancer of uterus and venereal disease, paralysis of arm following caustic treatment of cancer of breast, and another case of palsy following an operation upon the nose, injury to character through alleged error in diagnosis of pregnancy in an unmarried woman, also in the diagnosis of syphilis and again in a case of gonorrhea. However unjust and even frivolous the charge may be, it must be met, as it has a standing in law and in the courts.

The annual expense of this work of the Society for ten years has varied from nothing to \$1145. The average annual expense has been \$504. An experience of ten years would seem to be sufficient to enable the Council to decide as to the value of this service to its members. It is a species of mutual insurance against suits for alleged malpractice, which are usually unjust and not infrequently pure blackmail, brought to escape paying a just bill or to obtain hush money. As you all know, our medical defense act furnishes counsel to such of our members as may apply for such service in their defense in suits for alleged malpractice. The Society pays nothing on verdicts, nor in the settlement of cases. It is the

nearly universal opinion of the twenty-five State societies that have the law that it tends to discourage fake suits. That it has been a distinct benefit to a considerable number of our members is evident from the Secretary's records.

The Medical Society of the State of New York has had the law in effect twelve years. Their counsel, Mr. James Taylor Lewis, has been in this work 30 years, has tried several hundred cases and has never lost one, even on appeal. So far as is known to the writer, no State medical society has ever repealed its defense act.

Because of the unsettled condition of affairs generally, and in view of the deficit in the Society's treasury, owing largely to the remission of the dues of the enlisted members, it is hereby suggested that no new cases be accepted for defense until ordered by the action of the Council. The cases in hand should, of course, be carried to a finish. It is hoped that the services of the President and Secretary will continue to be extended to members who may be threatened with suits for malpractice. Further than that it would hardly seem prudent for the Society to go under present conditions.

In closing this report, may the writer be permitted to say that the members of this Society can no longer complain that the only asset they receive from their membership is an annual dinner? Aside from the camaraderie, which is no trifle, and the standing in the community and in our courts attaching to their membership in the Society, they receive one of the best medical journals in the country and, for ten years, they have had the privilege of a mutual insurance company's service in suits for alleged malpractice. Surely this can hardly be considered a limited or a onesided contract. On the contrary, it would seem to be a fair, if not a generous return for the annual dues and to justify a membership of five thousand rather than one of thirty-six hundred.

GEORGE W. GAY.

REPORT OF THE COMMITTEE TO COÖPERATE WITH THE STATE BOARD OF LABOR AND INDUSTRIES.

Your Committee to coöperate with the State Board of Labor and Industries has the honor to submit herewith its first annual report:

Promptly pursuant to your letters of notification, and accepting an invitation from the Commissioner of Labor, Mr. Edwin Mulready, these members of the Committee: Drs. Wheatley, Howard, Williams, Evans, met at the office of the State Board, No 1, Beacon Street, Boston, on Oct. 30, 1917.

Having been organized, with Dr. Evans, Chairman, and Dr. Williams, Secretary, the Committee was welcomed by Dr. Quessy who said, in effect: That he looked upon this recognition by the Massachusetts Medical Society of the problems of industrial health and disease as a tremendous achievement.

Mr. Mulready announced the intention of the State Board to bear all necessary expenses of the Committee.

Mr. Mulready outlined the field open, especially presenting two problems: Lead poisoning and the question of the advisability of women entering certain occupations to replace men who may go to war.

Dr. Harrington spoke of various factors of ill health among industrial workers. "Anthrax," he said, "is becoming dangerously common among workers with hides, because the skins now being brought to this country, which, before the war, were sent to Europe, come from China and Africa where cattle anthrax is very common." He also referred to gas and fume poisoning to which the workers with aeroplane paint are unnecessarily exposed, owing to the ignorance of both engineers and physicians.

Dr. Evans spoke of the value of correct clinical records both to the physician himself and to the various boards and individuals that had, in the making, medical literature.

Dr. Wheatley spoke of the need for this Committee more completely coöperating with the State government.

Dr. Howard described the work of the Milk and Baby Hygiene Association.

The meeting was adjourned to Nov. 13, 1917.

The second meeting of the Committee was held at 400 Marlborough Street, Boston, all members being present.

Here it was clearly brought out that we were only an advisory body, and that always it should allow the initiative to be taken by the Board of Labor and Industries.

Dr. Howard said, "The Committee should, however, signify its willingness to consider all questions that the Board might wish to offer."

Voted: That the following letter be sent to the State Board of Labor and Industries through its executive officer, the Commissioner, Mr. Edwin Mulready:

Dear sir:

The Committee of The Massachusetts Medical Society to coöperate with the State Board of Labor and Industries, desires to notify the Board of its willingness to consider all such problems as the Board may wish to refer to it, and, as the Commissioner has already suggested two subjects, namely, How to interest physicians to report cases of industrial lead poisoning, and the question of women entering certain industries in order to replace men who have entered military service, the Committee instructs the Secretary to request a list of the industries in which it is proposed that women may so replace men, in order that it may consider the probable effects of such occupation on the health of women.

JOHN T. WILLIAMS, *Secretary.*

Numerous other meetings were all well attended. At one meeting of your Committee, the device of reaching the Fellows through the District Medical Societies was hit upon, and with happy results. Two industrial health conferences have been held, one at the invitation of the Worcester North District Medical Society, the second at the invitation of the Bristol South District Medical Society; the first at Fitchburg, the second at New Bedford, and a third is now in contemplation to be held in Greenfield.

These conferences are fully reported and, later, are to be issued by the State Board of Labor and Industries in book form, and will be available to all who may wish to possess them. The general announcement reads:

"The State Board of Labor and Industries, with a Coöperating Committee of the Massachusetts Medical Society, is inaugurating a State-wide effort to mobilize allied interests in developing positive means to make and maintain, healthy and strong, the internal life of this Commonwealth, especially through the vital concerns—fundamental to its very existence in peace and to its larger life in war—of industrial activities."

ALBERT EVANS, *Chairman.*

FRANK G. WHEATLEY.

ARTHUR A. HOWARD.

HARRY LINENTHAL.

JOHN T. WILLIAMS, *Secretary.*

REPORT OF THE COMMITTEE ON THE CONTROL OF VENEREAL DISEASES.

Your Committee has held several meetings and has conferred with representatives of the State Health Department and with Lieut. McKee of the National Army, in charge of the venereal problem in this vicinity. The New York City Health Department has been visited, and considerable material, facts and literature have been collected.

Our desire has been to supplement and not to duplicate work already under way in the State.

The Health Department plans to control the venereal problem through four channels:

1. Reporting.

This should have the support of the entire medical profession.

2. Free arsphenamine.

This will be welcomed.

3. Repression of prostitution.

Which should receive our endorsement.

4. Education.

In this the support of the members of our Society will not be wanting.

The State is planning to establish about fifteen venereal clinics throughout the State. These clinics will be the distributing stations for arsphenamine, and will also supply free means for exact diagnosis. It is hoped, moreover, that these clinics will act as consultants, and will gladly furnish all possible help for that locality. Dr. Baker, from his experience in the Wassermann laboratory in Worcester is convinced of the great educational value of local Wassermann laboratories where the general practitioners can be encouraged to bring in their specimens for examination, and can talk over their cases with the serologist. In this way, routine Wassermann tests become a habit with many physicians, as a result of their broader viewpoint.

It seems to your Committee that the members of our Society can be of much help in supporting these clinics. There is great need of prompt diagnosis and treatment, and it is hoped that these clinics will have a stimulating effect along this line.

There are still many hospitals in the State whose doors are closed to patients with venereal disease. We believe that the members of the Massachusetts Medical Society can render effective service by their influence with local hospitals to provide a few beds for the care of syphilis or gonorrhea during the contagious period. Such action would naturally increase the number of beds available for the care of such cases. Even the allotment of *one* bed would furnish sufficient hospital accommodations to allow from 15 to 24 infectious syphilis annually to be returned to the community *non-infectious*.

We are soon to have a list of all hospitals in the State, and then we shall find out how many will admit venereal disease, and in what number; and, if not admitting, *why not*.

Dr. Hitchcock, representing the Health Commissioner, outlined the Board's plan of a propaganda of publicity through articles in the lay press—these to be edited by a practical newspaper man, and to consist of articles on cancer, tuberculosis, child welfare, etc.; and Dr. Hitchcock suggested that our Committee might be allowed to furnish short articles on syphilis and gonorrhea. This plan, while it would entail some expense, would stimulate greater activity on the part of the medical profession as the result of an awakened public opinion.

Your Committee also favors a series of short, live articles in the BOSTON MEDICAL AND SURGICAL JOURNAL, perhaps every other week, on some pertinent phase of the venereal problem.

It was suggested that something might be accomplished through the local medical societies and clubs by urging that one meeting, at least, might be given to the consideration of venereal diseases.

Short talks during the noon hour to employees of manufacturing and other establishments should be arranged for *mixed* audiences. "For men only" or "women only" should not apply to syphilis and gonorrhea, and tends to cloud, rather than to clarify, the situation.

From the army and navy standpoint syphilis is practically *all* of venereal origin—which is far from true with the civil population, and I feel that again to classify syphilis as a venereal disease is a side step, if not a back step, as it at once undoes all that we have been trying for years to accomplish, *viz.*, the consideration of syphilis as a chronic contagious disease. In civil life about *half* the cases are innocent

infections, and should, therefore, be free from the stigma of "venereal disease."

To carry out some of the recommendations of your Committee a certain amount of money will be needed, particularly if the suggestion of newspaper articles is adopted.

C. MORTON SMITH, *Chairman*.

REPORT OF THE COMMITTEE ON HEALTH INSURANCE.

The Recess Committee of the Legislature which considered social insurance made a very comprehensive report advocating greater extension of public health service affecting all laborers, the payment of living wages, and the extension of supervision of labor in the various plants of the State.

No special insurance legislation was reported as desirable.

In spite of this, various bills for old age pensions and health insurance were introduced. These were considered in committee and reported as "referred to the next General Court." This report was accepted by the Legislature. So there has been no active work on the part of the Committee.

A. K. STONE, *Chairman*.

Correspondence.

IOWA STATE MEDICAL SOCIETY: A CORRECTION.

Des Moines, Iowa, June 17, 1918.

Mr. Editor:

Our attention has been called to an error in the officary of the Iowa State Medical Society as it appeared in your publication following our annual session last month.

If not asking too much, and consistent with your policy, would you be so good as to make the necessary correction, that proper credit may be had.

Our 1918-1919 officers are: President, Dr. Max E. Witte, Clarinda; President-elect, Dr. Will L. Allen, Davenport; First Vice-President, Dr. William A. Rohlf, Waverly; Second Vice-President, Dr. Evan S. Evans, Grinnell; Secretary, Dr. Tom B. Throckmorton, Des Moines; Treasurer, Dr. Thomas S. Duhigg, Des Moines; Editor, Dr. D. S. Fairchild, Clinton.

Thanking you, we are, very truly yours,

Iowa State Medical Society,
Tom B. THROCKMORTON, *Secretary*.

MEN WANTED FOR HOSPITAL CORPS, UNITED STATES NAVAL RESERVE FORCE.

Men who have had experience in nursing and pharmacy are wanted immediately for the Hospital Corps of the United States Naval Reserve Force.

Applicants must be American citizens between the ages of 18 and 25, and must apply in person to the District Medical Aide, Room 1211 Little Building, Boston, Mass.

As these men are to be trained in the First Naval District, it is necessary that they have a knowledge of nursing and pharmacy. They will be assigned to hospitals in this district and will be trained under the supervision of some of the best physicians in the Naval Service.

The pay varies from \$35.90 per month for hospital apprentices, second class, to \$72.00 per month for Chief Pharmacists' Mate. In addition, there is an allowance up to \$50.00 per month for dependents, according to relationship and number. There is also insurance at low cost in any amount up to \$10,000. This insurance is good after the war. There are many other inducements such as retainer pay, retirement bonus, allowance of \$60.00 worth of clothing upon entering, free medical attendance, opportunity to travel and a chance to serve the country.

If of the draft age, the applicant must bring with him a release from his local board. If over 18 years and not yet registered in the draft, he must bring a birth certificate.

The Boston Medical and Surgical Journal 35

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Original Articles.

EXTREMES IN INFANT FEEDING, THE PRESENT TENDENCIES.*

By FRITZ B. TALBOT, M.D., BOSTON.

DURING the past ten years there have been three distinct tendencies in the modification of milk for infants, and the following communication comments on these tendencies and their good points and fallacies.

There has been much controversy and criticism of the so-called "Boston Method" of infant feeding,—a method, indeed, which does not exist, unless we take Dr. John Lovett Morse's repeated teaching that "each infant is a law unto himself; that the milk should be modified to suit the infant, and not the infant made to suit the formula." The principles taught, however, are not the principles which are always practiced.

The first principle in infant feeding which my student mind absorbed was that the percentage composition of cow's milk in artificial feeding should be so modified as to resemble, as near as possible, human milk. The set of formulas taught was strictly adhered to, and it seemed heresy to vary even as much as one quarter of one per cent. from the formula giv-

en for a certain age. A young baby on being weaned was first started on a formula containing cream, skim milk, lactose and water, given in the following percentages: 2% fat, 5% lactose, and .50% protein. This formula was made progressively stronger, in the following sequence,—2.50, 5.50, .75; 3, 6, 1.00; 4, 7, 1.50, up to the latter, which is supposed to approximate human milk. The lack of knowledge concerning the composition of human milk was responsible for the assumption, in the student mind, at least, that it always contained 4% fat, 7% lactose, and 1.50% protein. Recent studies of the chemical composition of human milk, however, have shown that its strength varies in different women; that the percentage of fat may normally be anywhere from 2 to 6%; the percentage of sugar, which is more constant than that of fat, has been found to be as low as 5%, and as high as 7.8%, while the percentage of protein may vary from 1 to 2%. Despite these variations in the percentage composition of human milk, breast-fed infants, with few exceptions, thrive and develop normally, providing that the quantity received is sufficient to supply the necessary caloric requirements; and there is very little convincing evidence to show that the variations in the percentages of fat, carbohydrate, and protein in breast milk have any marked effect on the well-being of a breast-fed infant.

* Read at meeting of the New England Pediatric Society, March 8, 1918.

A very essential but little-understood factor in breast milk, and one which is not approximated at all in modifications of cow's milk, is the salts.

Artificially-fed infants usually do well at home despite the way the milk is modified, provided that they are protected from external injurious factors, have good hygienic surroundings, and are not over-fed. There is a small number of infants, however, which, either from some inherited weakness in digestion, or because of handicaps, such as prematurity or congenital diseases, thrive only when the milk is modified with the greatest care, from the beginning. There is still another group of infants who have either been improperly fed over a long period of time, or whose digestion has been weakened by illness, who are made to thrive only with the greatest difficulty. These cases of improper feeding could be prevented if the percentages of the formula were properly figured out, the calories estimated, and due regard given to the information obtainable from the stools.

Fat. About ten years ago the commonest fault in infant feeding was over-feeding in fat, either intentionally or by mistake. In the former instance, anxiety to make the baby gain was responsible, and in the latter the fault lay in the neglect to figure up the percentage of fat actually given in the formula, thus failing to recognize the fact that cream might contain as low as 5% or as high as 40% fat. It was very often found that infants with a fat indigestion received much more than 4% fat in their formula. Attention was, therefore, drawn to the rôle of fat in indigestions, and it became the custom to consider that all indigestions during infancy were due to fat. This tendency became more pronounced when stools began to be examined microscopically as well as macroscopically. The use of sudan iii, which stains fat a bright orange red, made the fat in the stools stand out prominently under the microscope. When, therefore, a stool was found microscopically to contain any fat at all, it was assumed that there was too much fat in the food, and the amount was reduced to such a degree that it was impossible to supply enough calories without giving excessive amounts of carbohydrate or protein. This procedure, in many cases, was both unjustifiable and harmful. The fat should be reduced only when the macroscopic and mi-

croscopic findings are accompanied by clinical symptoms of indigestion.

The writer, in an earlier paper, laid much emphasis upon the amount of fat in the stools necessary to cause a fat indigestion, but it seems wise now to define exactly what he believes constitutes an indigestion due to fat. A true fat indigestion may be said to exist when the stools resemble scrambled eggs. This is the only type of stool which, without exception, is due to too much fat in the food. There are other types of stools which may or may not represent a fat indigestion, such as "soap stools," and stools containing soft curds. If "soap stools" are present with a normal digestion they are of no significance and cannot be said to represent a fat indigestion. If accompanied by symptoms of indigestion, they may be said to represent a fat indigestion and will disappear when the fat in the food is diminished. In this case, the clinical symptoms, and not the microscopic findings, furnish the final evidence for diminishing the fat in the food. Stools containing soft curds are more commonly seen than either the scrambled egg or "soap stool," and, therefore, have quickly attracted the attention of nurses and physicians, because they are easily recognized. Some years ago the writer showed that they were composed almost entirely of fat, but do not always signify that an infant is suffering from too much fat in the food. In a large proportion of cases, soft curds merely represent an overflow of unused fat from the body, and if no symptoms of indigestion are present, they cannot be considered abnormal. When symptoms of indigestion are present, soft curds, in the great majority of instances, will be found to be due to too much carbohydrate in the food, and not, as is ordinarily supposed, to an excess of fat. The rôle of carbohydrates in the production of fat curds was at first not taken into consideration, and the appearance of soft curds was wrongly interpreted as meaning too much fat in the food in all instances. Fat, therefore, is not as dangerous to an infant as many believe, but, on the other hand, is often necessary for its well-being.

Carbohydrate. After the fat was unnecessarily reduced in the food, as a result of the examination of the stools, large amounts of carbohydrate were then given to supply sufficient calories to make the baby gain in weight. Foods containing large amounts of carbohydrates

were widely advertised by the manufacturers of proprietary foods. Fat indigestions and carbohydrate indigestions became more common. Many babies then gained rapidly when fed on high carbohydrates, but very few physicians stopped to think what was really happening inside the infant. Consequently, so much carbohydrate in the diet satisfied the hunger, and as a result, there was often insufficient protein given to build up muscle. The rapid gains in weight lulled the parents and physicians into a false sense of security. This increase in weight, however, did not represent muscle and bone, but was made up either of fat or water. If the former, the baby became fat and pasty, unable to resist infection, and as a result succumbed easily to disease,—a bad risk, even though it was a big, fat baby. If the latter, the infant made enormous gains in weight, became puffy and oedematous, and on losing the water from the body there resulted an equally rapid loss of weight. One of the earliest symptoms of carbohydrate indigestion is sour watery vomitus, which nearly always means too much sugar in the food. Other important symptoms in the sequence of their appearance are gas, green, spongy stools, and finally watery, green, acid stools which cause scalding on coming in contact with the skin. These stools usually contain soft, fatty curds, which have been wrongly interpreted as evidence of a fat indigestion. How can the fat curds in these stools be explained? Carbohydrates are broken down by the digestive juices into simple sugars (monosaccharides) ready for absorption. When there is too much sugar to be immediately absorbed, the intestinal bacteria decompose the sugar into lactic, acetic, and butyric acids. These acids, when concentrated, are irritants, the intestinal canal gets rid of them as quickly as possible, there is an increased peristalsis, and the food, which under normal circumstances would take eighteen to twenty-four hours to pass through the intestinal canal, goes through in from three to four hours. This, therefore, does not leave time for complete digestion and absorption of any of the food components, and as a result, they are carried out before digestion is complete. So far as the writer's observations go, there is no exception to the rule that burning or scalding stools, which irritate the buttocks, are due to too much sugar in the food. Over-feeding in carbohydrate is just as

harmful as over-feeding in fat. The signs of carbohydrate indigestion are easily recognized, and the second swing of the pendulum was a growing tendency to attribute more and more of the indigestions of infants to sugar or starch. As a result, therefore, many physicians then began to give foods low in both carbohydrates and fats. The only food component now left to give in abnormal amounts was protein.

Protein. During the time that increasing amounts of sugar were being given, and smaller amounts of fat, more and more protein was added to the food in order to give the required number of calories. At about the same time the influence of the German schools reached this country, and many practitioners accepted, without qualification, the teachings that protein was harmless. As a result, there was a growing tendency to give, even to the very young infants, larger and larger amounts of protein, by the exclusive use of whole milk or skim milk mixtures. This method of feeding infants was not new, but was practised many years ago by Budin in Paris, and also during a recent summer on the Boston Floating Hospital. In the latter instance, all infants, irrespective of age or condition, were fed on undiluted skim milk. Some apparently did very well, others poorly, and a few became so ill ("intoxication") that they were saved only by the use of human milk. The experience of that summer did not justify the continued use of undiluted skim milk, but recently it has been resurrected, and again come into vogue, especially among trained nurses. The principal evidence against the use of high protein feeding in early life depends upon the observations of Selter, Gellhorn, Holt and Hoobler, who describes an intoxication from too much protein in the food, of which the following symptoms are characteristic: subnormal temperature, slow pulse, superficial respiration, and a bluish-gray color of the skin. The stools are curdy and grayish-yellow, with a cheesy odor. The urine contains a kenotoxine which, when injected into mice, causes a set of symptoms similar to those present in the babies. Exactly what takes place when an infant receives a formula with a high percentage of protein is not certain, but there is undoubtedly a clinical syndrome due to such over-feeding.

High protein feeding is not as economical as that of carbohydrate and fat, and puts additional work on the digestion. If enough extra

water is not given between meals to hold the products of digestion in solution, an added burden is also placed on the excretory organs, especially the kidneys. It has been frequently shown that during the digestion of carbohydrates the metabolism is increased 5.8% by the work of digestion, while fat causes 12.7% increase, and protein a 30% increase. The digestion of protein, therefore, is not as economical as that of carbohydrate and fat. It is necessary to give 130 calories of protein to supply the same amount of usable calories as is obtained from 105 calories of fat or 112 calories of carbohydrate. Although the teachings in the past have laid too much stress on the harmful effect of protein, it has since been shown that greater quantities can be used than was formerly supposed possible, especially when the milk is boiled. Protein, however, may cause symptoms which are dangerous to life, and should not be used indiscriminately.

The object of this communication is not to destroy the present methods of feeding, but merely to draw attention to the extremes and emphasize the importance of feeding a baby according to its physiological powers of digestion. The following rules may be taken as a guide to prevent extremes:

1. A newborn infant needs, roughly, about 60 calories per kilogram of body weight: a three months' old infant from 100 to 200 calories; a six months' old infant from 90 to 100 calories, and a nine months' old infant from 70 to 90 calories.

2. The percentage composition of the food should be adapted to the digestion of the individual infant, but in no instance should more than 4% of fat or 7% of sugar be given. The limits of protein are rather more difficult to define, but, roughly speaking, at least 7% of the food calories should be protein, and infants under four months of age, with rare exceptions, should never receive more than 1.6% protein.

3. The clinical symptoms, plus the gross appearance of the stools, should be guides as to whether the food elements are digested or not. The microscopic examination of the stools in infancy is only of secondary importance in infant feeding, and should be used only to confirm other findings.

4. Finally, due consideration should be given to the balance of the food components, especially of fat and carbohydrate, in relation to

protein, and care should be taken that sufficient vitamins, both fat-soluble and water-soluble, are present to insure proper growth.

DISCUSSION.

DR. MORSE: Dr. Talbot has gone back ten years. I can go back twenty-five or thirty years. I remember the days when we were taught by Dr. Rotch that we should attempt to imitate human milk by giving the same mixture to all babies, *i.e.*, 1-2 cream, 1-8 milk, 1-16 limewater, water to 1, and sugar up to 7. We gradually went on and adopted other points of view. For a time everybody thought that with each change the problem of infant feeding was solved. Having seen so many changes in the points of view as to infant feeding, it makes me very much less certain now whether I am right at any given time in my method of feeding babies. It is much more difficult for me to get up and speak about infant feeding now than it used to be. I used to be sure that I was right. Now I am quite certain that what I think is right today will be modified by new discoveries tomorrow. I am not quite so pessimistic as to the microscopic examination of the stools as Dr. Talbot is. I feel that the way that the results of the microscopic examination of the stools are interpreted by a great many men, they would be a great deal better off if the stools had not been looked at at all, because they see something in the stool and act on what they see without using their brains. I think we need to mix a little brains with the solutions of sudan iii and iodine. If we do that, we can get very useful information from the microscopic examination of the stools.

THE MENTALLY DEFECTIVE CRIMINAL.

BY AMOS T. BAKER, M.D., EAST VIEW, N. Y.,
Formerly Director, Psychopathic Laboratory, Police Department, New York City; Consultant, Department of Clinics, Westchester County Reformatory, East View, N. Y.

ONE of the fields which in recent years has been entered by psychiatrists—a field abounding in possibilities for scientific investigation—is that of the study of the criminal. In a field heretofore neglected by medical men, methods of investigation of a more or less experimental nature had to be adopted; some have been discarded, others have been retained.

The problems brought to light likewise are many, and in many cases quite different from those met with in other psychiatric branches. One meets with individuals of a more or less abnormal make-up for whom there is no descriptive designation available. In the future these cases may provide psychiatrists with material which may prove helpful in the solution of other problems.

Something so far has been accomplished yet still more remains to be done before a scientific understanding of the whole problem can be presented and a classification of the clinical material made on a medical basis.

Among criminals cases are seen which for years have been subjects of study and treatment in the established domains of mental and general medicine. I refer particularly to the insane and the mentally defective. For the care and treatment of the so-called criminal insane special provision has been made in many states in this country, and also in other countries; on the other hand, the treatment of the mentally defective criminal, as such, is practically unknown. The reasons which led to the establishment of separate institutions for the criminal insane, it seems to me, apply as well to the mentally deficient criminal; in fact, many of the latter class from time to time, for lack of a more suitable place, are sent to the hospitals for the criminal insane. Many of them are not equal to the demands made upon them in the reformatories and prisons and should be given the benefit of care, treatment and training in a proper institution.

The Police Department of New York City in November, 1916, for a second time, established a psychopathic laboratory for the study of individuals arrested for crime. Under the plan of re-organization as outlined by the executive committee composed of Dr. Thomas W. Salmon, Medical Director of the National Committee for Mental Hygiene, Dr. Menas S. Gregory, Director of the Psychopathic Ward at Bellevue Hospital and Dr. George H. Kirby, director of Clinical Psychiatry at the Manhattan State Hospital, Ward's Island, groups of more or less accessible persons were selected for scientific investigation.

The laboratory was installed at police headquarters. All adult prisoners accused of felonies brought to police headquarters, and all adult prisoners arrested in a nearby inspection

district were designated for intensive study. As many as possible of these individuals were seen and interviewed. For the period of eleven months from December 1, 1916, to November 1, 1917, about eight thousand persons were seen and interviewed by the laboratory staff.

It is obvious that with a small staff it was utterly impossible to give each of these eight thousand individuals a satisfactory examination; in fact, owing to the necessities of court procedure, as well as for other reasons, a prolonged examination of all would not have been possible or desirable even had the laboratory the necessary equipment.

In consequence those who, from their manner or appearance or from the nature of the crime committed, seemed to be abnormal, were, where circumstances permitted, selected for examination. 823 individuals were selected and were given a more or less prolonged examination; of the 823 so selected and examined 16% were found to be mentally defective. In many of these cases a complete mental, physical and psychological examination was made.

The laboratory has a record of 119 cases of mental defects in which a court disposition was made; sixty cases, or approximately fifty per cent., were released from custody by the courts, and the other fifty per cent. were sent to one or another penal institution.

The group of sixty cases released by the courts is the one now selected for presentation. All of this group were more or less noticeable from their general appearance of inferiority; many looked stupid and unintelligent; many of them presented one or more stigmata of degeneration; some were not able to give satisfactory answers to questions regarding their past lives; often painstaking cross-examination was required in order to induce them to recall matters about which there should have been no hesitation.

Of this group 52 were males and 8 females; 44 were single; 12 were married and 3 were widowed. In one case the civil condition was not ascertained. Of the 8 females 3 were prostitutes, and in the cases of two others their crimes resulted from sexual irregularities. Two were decidedly alcoholic and the remaining one was a confirmed thief.

The crimes committed by this group are shown in the following table:

Abduction	1
Assault and attempted robbery	2
Assault and grand larceny	1
Attempted burglary	1
Attempted felonious assault	1
Attempted rape	1
Attempted robbery	1
Bribery	1
Burglary	14
Concealed weapons	1
Felonious assault	7
Grand larceny	12
Kidnapping	1
Perjury	1
Petit larceny	1
Receiving stolen goods	1
Robbery	8
Sodomy	2
Unlawful entry	2
Vagrancy	1

4th grade	4
5th "	14
6th "	3
7th "	8
8th "	2

After an acquaintance with the chronological ages and the school record it is interesting to note the mental ages of this group, reference to which reveals the following:

12 were imbeciles
 2 had mental ages of 7 years
 4 had mental ages of 8 years
 14 were rated as having mental ages of 9 years
 13 had mental ages of 10 years
 2 had mental ages of 11 years
 9 had mental ages of 12 years
 4 were classified as subnormal

Reference to the foregoing table shows that forty-three or 72% of these cases were charged with crimes of an acquisitive nature. This fact is important to bear in mind in connection with the economic progress of the members of this group.

In referring to the table of the ages the mode is found to be sixteen years and the median age twenty-one; over fifty per cent. were of twenty-one years or under. The table of chronological ages is here given in full:

16 years	8
17 "	6
18 "	3
19 "	6
20 "	4
21 "	6
22 "	2
23 "	1
24 "	5
25 "	1
26 "	3
27 "	2
28 "	2
29 "	1
30 "	1
31 "	4
32 "	1
34 "	1
36 "	1
37 "	1
51 "	1

The school records are very significant; almost invariably there was a history of poor progress at school; the ability of this group to study and to apply themselves to the daily school tasks proved irksome and difficult; truancy was not infrequent. In most cases work had to be repeated and promotion was slow, and after a certain grade well nigh impossible.

The school record as given by each subject shows the degree of education attained to be as follows:

None	15
Read and write	10
3rd grade	2

The work done by this group was all of an inferior nature; only seven males out of a total of fifty-two remained employed in one position for over a year; it is interesting to note that these held their jobs for four years or more; two of them worked as useful men for physicians; one worked in a small laundry; one was a laborer with pick and shovel; one worked in a small tailoring shop pressing clothes; one was employed by a firm to carry about samples for salesmen; one worked for a large manufacturing concern. It would seem that in the cases of six of these seven that their positions were such that they did not have to compete with others, and also that they were closely under the supervision and direction of their employers. In the case of the other forty-five males it was found that they held their positions for comparatively short periods; they were out of work for longer or shorter intervals, depending upon their good fortune in securing employment. Their histories show that they left jobs for various reasons; some were not able to get an advance in pay; others found certain features of their work distasteful; others simply got tired of working; others were discharged for reporting late for duty or for becoming involved in controversies or fights with fellow employees or those in authority over them.

Of the sixty cases, thirty-three, or over 50% of them had previous criminal records; 15 had been arrested once before; 13 had been arrested twice before; one was arrested three times previously; one had been under arrest four times previously and three had been under arrest previously as many as five times.

Over fifty per cent. were accustomed to indulge in alcoholic liquors.

It would be interesting to know what expense

the community has been put to by this group.

In addition to making an examination of each member of this group the laboratory instituted an investigation of the history of each case after discharge by the courts. It was learned that since their discharge by the court 19 have been leading more or less anti-social lives; 9 have been arrested once subsequently; 4 have been arrested twice subsequently and 1 was arrested five times subsequently; the remaining five are not working and are associating with known bad characters; 14 have been in and out of employment; 12 are working with satisfactory steadiness and are self-supporting; 15 have disappeared.

A study of this group, together with the other which the law had deemed wise to confine for a time in some penal institution, raises the question, is society dealing with these individuals in a suitable manner? These individuals are poorly endowed from birth; all through life they are found lagging behind their normal associates; in school their progress is slow and discouraging; when called upon to compete with others in the struggle for existence they are not equal to the task. To compensate for this lack they revert to a more primitive method of acquiring a livelihood; hence their anti-social behavior, for what they cannot acquire legitimately by reason of their inferior endowment they take by force.

To equip these individuals so that they may have a better chance to compete with others will require time and patient training; many of them would be greatly benefited if the proper attention was given them.

It seems to me that there is great need for an institution to which these mentally defective delinquents could be sent where they could be cared for and trained as their condition demanded.

If these individuals could be segregated early in life, before criminal habits become established, the possibility of obtaining results would be greater. In time to come this may be possible; at the present time they present a problem which demands a solution, both for the benefit of the individual and the community. Of what value is it to the individual or the community, on the one hand, to send these individuals to prison where contact with older and hardened criminals may firmly establish anti-social habits or, on the other hand, to re-

lease them outright not any better prepared than they were before, and encouraged to some degree by not receiving the punishment expected, to continue in most cases an anti-social career?

TREATMENT OF COLDS.

By D. C. DENNETT, M.D., WINCHESTER, MASS.

A COLD is an abscess with many openings and diverticula. The treatment is sterilization and drainage. It is the most important disease of this climate. It causes the greatest economic loss.

The purpose of this paper is to call attention to the treatment of colds and to review certain facts which must be borne in mind if colds are to be treated successfully. Never mind the germs to blame for the pathological process, but carry on against all germs and do it early. A cold is purely local at first and exists, without subjective symptoms, on some part of the mucous membrane of the upper air passages, the lachrymal passages or the conjunctival sac. Before the patient senses any disease there may be objective symptoms. There will be no subjective symptoms until the toxin formed by the germs passes through the epithelial layer of the mucous membrane into the blood stream. When there develops a sense of delicious drowsiness, followed by a little stiffness, a little ache in a bone or muscle, or pain in head or spine, cold feet, a little chilliness, a little sore throat, and then a little fever, the cold has entered the blood stream and the disease has become constitutional. Prior to these symptoms an examination of the throat would have shown impending trouble, and the treatment at that time either would have aborted the attack or greatly lessened its virulence. Inexplicable drowsiness and fatigue are often the first symptoms of a cold. The enemy has passed the "far flung battle line" and the germ narcotic in the blood stream has reached the brain. All of the above symptoms may be present, or one or more may be absent. High fever, severe pain, chills and icy feet may be, and not infrequently are, caused by poisonous absorption from some area in the upper membranes, without any soreness of the throat whatever. And on the other hand, the throat may be very sore without the other constitutional symptoms. The individual resist-

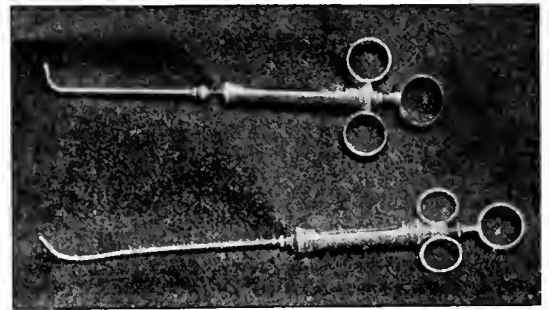
ance may be so strong, the epithelial layer such a barrier, that the germs and toxins cannot pass beyond the spot where they are lodged. It is, then, a localized cold. The individual, without suffering harm himself, is a menace to others. He is a cold-carrier. The white blood corpuscles and the epithelial cells battle against the germs. Treatment should begin where the battle is raging. We should go to the assistance of the natural forces.

To rely on remedies administered internally without local treatment is like trying to purify the river down stream and doing nothing to prevent the known pollution of the headwaters. It is unscientific, to say the least. If we destroy the pollution at its source it is often unnecessary to use any other remedies. A membrane constantly infected with virulent germs to a greater degree than normal is often the first stage in pneumonia, tuberculosis, bronchitis, arthritis and some other diseases. This cannot be too strongly emphasized. The first stage of pneumonia is a subacute or more or less chronic pneumococci, streptococci, staphylococci infection of the mucous membranes above the larynx. Don't forget that. If the upper membranes were more carefully treated there would be less pneumonia. If we always bear in mind that a cold is an infectious and contagious disease, furnishing the physician in this locality the bulk of his work, causing an enormous economic loss, acting as the exciting cause of many other more serious diseases, besides causing great suffering, we shall treat it with greater care.

Let us consider first the treatment of a "head cold" as distinguished from what the patient calls a "bronchial cold" or "cold on the chest" (bronchitis) and cold with "loss of voice" (laryngitis). Begin by treating the conjunctival sac. Some colds start there and work down. Evert the lids to see what is there. Inspect the nose, the post-nasal space, pharynx and fauces. The most important place to treat is a triangular area, the apex of which is on the posterior pharyngeal wall opposite the tip of the uvula, the base up, with the two upper angles marked by the openings of the Eustachian tubes. This I call the "triangle of fire." It is the sorest spot in most colds. Treatment of this area causes the most smarting. The virulence of the cold is frequently measured by the degree of burning and smarting caused by the treatment of this area. The patient may

not know this part of the pharynx is so sensitive until it is treated. Then he will exclaim, "It smart's like fire," whereas he has made no complaint of the same treatment of the other areas.

Apply to the everted lids a 50% solution of silver vitellin. Too weak solutions are practically worthless. The solution is so rapidly diluted with tears that a 50% solution is reduced to 5% strength in a fraction of a minute. In three or four minutes, after putting one drop in each eye, direct the patient to open his mouth and the silver will be seen running down the posterior pharyngeal wall. This shows where the tears go. Any infection of the conjunctiva that is not destroyed by the tears may pass through the lachrymal canals to the triangle of fire. Hence the importance of treating the conjunctival sac in colds. It may prevent the reinfection of the throat. Always treat the



The upper syringe is a good one. The lower one is spoiled by the curve in the tip. The right-angle bend in the tip is the proper one.

post-nasal space with a syringe. Do not use a post-nasal applicator. A thorough treatment cannot be given with it; it gags more and is more painful. After applying the silver to the pharynx with the syringe, direct the patient to hold his head down for a moment, and as soon as the medicine appears in the nostrils the head should be held up and back and the silver snuffed up. Warn the patient not to blow his nose after the treatment for at least an hour, and not to dislodge the silver-impregnated mucus in the post-nasal space. He may spit out what runs into the mouth, but no more. If this treatment is properly given at bedtime the silver will remain in the nose and throat all night, ensuring a long contact with the germ-infected membranes. The technic and thoroughness of the treatment determine its efficacy. This applies to the use of most remedies. The value of an opinion concerning the efficacy

of a drug depends upon whether that opinion is based upon the faithful use of that remedy by a competent person. A drug may be used with great success by one physician, and as used by another it will do more harm than good.

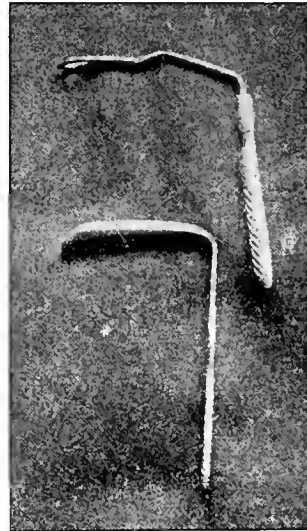
Success in the battle against disease depends as much upon the man behind the remedy as success in war depends upon the man behind the gun. Sulphate of atropin and aconite are the great internal remedies for the "head cold"; opium and ipecac (Dover's powder) for "bronchial colds." These drugs are very effective if given at the right time. If the silver causes much irritation of the conjunctiva put a little White's ointment in each eye. This is a useful routine practice with patients who have sensitive membranes. The local home treatment consists in putting one drop of 25% solution of silver in each eye every three hours, and two drops in each nostril. When the drops are put in the nose the patient should



The proper home method of giving a post-nasal through the nostrils. Head extended to the limit, medication with a medicine dropper.

lie flat on his back with his head well over the edge of the bed and so far extended that the drops will run up to the ethmoid region and back to the pharyngeal wall. Then, turning the head slowly from one side to the other, a very good local treatment is given. The post-nasal treatment given by the physician should be done in a way not to gag, frighten, or hurt the patient. This can be done if one knows how. With the mouth wide open, the patient should breathe with quick, short breaths, like a dog panting. If he holds his breath he will probably gag. The eyes should be kept open

and he should look calmly at some distant object. If he closes his eyes the chances are he will retch. He should not hold tightly to the sides of his chair, make himself rigid, or clench his hands. He should be instructed to relax and rest and not to look for trouble. The treatment should be given quickly and deftly. To do this, proper instruments are necessary.



The upper tongue depressor is the better one. The smooth, downward tip on the lower one causes it to slip back over the base of the tongue and unnecessarily gag the patient.

Some tongue depressors gag more than others, some syringes are hard to use. It is important to keep the feet warm during a cold. If the patient is up he should wear warm stockings, if in bed a hot water-bottle should be placed at his feet. As a rule the patient does not do well if his feet are cold.

If one member of a family has a cold the others should be examined for symptoms. One or two treatments will act as a prophylactic or will abort or modify a cold if it has just started. If there is a chronic, septic focus polluting the blood stream and lowering the body vigor and resistance, it should be removed at the proper time. A pus sac at the root of a tooth, a purulent pocket in tonsil or sinus may be the cause of lowered vitality that predisposes to recurrent colds. Rest is the greatest resistance promoter. Forty-eight hours in bed during a cold may prevent pneumonia. This is especially true in the aged and the weak. The germs are on the mucous membrane, waiting for the natural barriers to break down under the strain of fatigue and exposure that they may overcome the resistance of the victim. Pneumonia is the penalty for neglected treat-

ment of a cold when one is overworked or weary from any excess. The claim that "sickness is an error" comes nearer the truth than some of us are aware.

A "cold" patient should be directed always to cough and sneeze into his handkerchief. The handkerchief should effectually muffle the sound of a cough. There is no excuse for disturbing a church service or other public meeting by coughing. Spraying a cold, as done by the average patient, does more harm than good. Gargling is harmless, and may do good by dislodging post-nasal mucus that interferes with ventilation and drainage through the Eustachian tubes. A blood-warm, alkaline nasal douche, given with the Birmingham device, does good if there are dust and dirt in the nose and throat. This should be followed by oil vapor, and this by 25% sol. of silvol or argyrol. In children too young to expectorate, castor oil should be given to remove from the digestive tract the swallowed muco-purulent secretions. Hexamethylenamine with acid phosphate of sodium may be used with a liberal amount of water.

In military camps the soldiers should be ordered to report the first symptoms of a cold, and prompt treatment should be given. This is as important as reporting the first symptoms of specific urethritis. Acute infection of the pharyngeal mucous membrane may be treated as successfully as acute urethritis. During cold epidemics prophylactic nose and throat treatments should be given. Routine nose and throat inspection should be made at such a time. Before going aboard ship, all should be examined for infected mucous membranes. Careful, thorough, and repeated treatment will lessen the number of camp colds and pneumonia. To what extent colds may be spread through the dish pan is a question. Dishes are not sterilized as a rule, and if one member of the family or a guest dining with us has a severe cold his dishes may infect all the others in passing through the dish water, or the same dishes may be used by another person at the next meal. All dishes should be sterilized by boiling. There is still need of impressing people with the fact that colds are contagious and that they should try not to infect others. Do not "go a visiting" if you have a bad cold, and "keep away from bridge parties and public meetings" is a wise injunction.

SUMMARY.

This is a plea for the early, careful treatment of "colds."

A cold is a localized disease at first and may be treated as successfully in the first twenty-four hours as a specific urethritis in the same stage.

In military camps orders should require colds to be reported when the first symptoms appear.

Proper local treatment is very important.

The most important area to treat is "the triangle of fire."

A cold may remain localized for weeks with no subjective symptoms. This is the case with the cold-carrier.

Treat the eye first with a strong solution.

Keep a tube of White's ointment handy for use in the eye if it smarts after treatment with 50% argyrol solution.

Give the patient 25% solution for use in the eyes and nose.

Do not poke a cold with medicated cotton on a stick.

Do not spray a cold.

Do not give aspirin except for pain, and do not give quinine and whiskey.

Treat a cold seriously because it is a serious disease.

A cold, acute or chronic, is the first stage of pneumonia, pulmonary tuberculosis, many cases of so-called rheumatic fever, and other serious diseases; that is to say, the germs of these diseases first existed on the upper mucous membranes, and the best prophylactic for these diseases is sterilization of those membranes to the greatest extent possible, plus rest and hygienic environment.

It is against the law of good form to cut out your muffler when you sneeze or cough.

Give sulphate of atropine and aconite in the first stage of "head colds," steam and oil inhalations and warm air for "loss of voice colds," Dover's powder early for "cold on the chest."

This paper is based on the treatment of over two thousand cases with 25% to 50% solutions of silvol and argyrol applied locally, combined with certain internal medication, which was varied to suit the case. If used at the right time the local treatment is best and most effective.

Society Reports.

NEW ENGLAND PEDIATRIC SOCIETY.

THE fifty-second meeting of the New England Pediatric Society was held at the Boston Medical Library on March 8, 1918, at 8.15 p.m.

Dr. E. P. Stickney of Boston, in the chair.

The following papers were read:

1. Pyloric Stenosis, W. E. Ladd, M.D., Boston.*

2. Studies of Infant Feeding. X, the Digestion and Absorption of Fats, A. W. Bosworth, H. I. Bowditch, M.D., Boston, Louise A. Gihlin, from the Boston Floating Hospital Laboratories.

3. Extremes in Infant Feeding, the Present Tendencies, Fritz B. Talbot, M.D., Boston.†

4. An Original Scheme for Demonstrating Infant Stools, J. I. Grover, M.D., Boston.‡

DR. MORSE (Dr. Bowditch's paper): I think we are all of us much interested in the results of the work by Dr. Bowditch and Mr. Bosworth in bringing the question of the salts before us in such a practical way.

DR. GEORGE D. CUTLER (Dr. W. E. Ladd's paper): I am very much surprised to be called upon to discuss this paper because my experience with this operation has been so limited.

During the past eight years I have had the opportunity of seeing many operations for the relief of pyloric stenosis. As I remember it, the operation of posterior gastro-enterostomy in infants consumed at least seventeen minutes. I am much impressed with the safety and ease of pylorotomy and I agree with Dr. Ladd that this is the operation of choice. There is practically no hemorrhage and it may be performed very quickly. It seems to me, as the mucosa is not opened at all, that the possibility of resuming feeding so soon after operation is a decided advantage.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, MAY 1, 1918, 8 P.M.

DR. THOMAS R. NEILSEN, Acting-President, in the chair.

REPORT OF A CASE IN WHICH THE PATIENT SURVIVED THE REMOVAL OF A LARGE TUMOR OF THE BRAIN FOR OVER THIRTY YEARS.

By Drs. W. W. Keen and A. G. Ellis.

DR. KEEN: The case was my very first modern brain case; it shows our then technique, being one of the earliest operations on such tumors and following by only two years Godlee's in 1885. The patient, a man aged 26 years, consulted me in May, 1887. When three years of age he had fallen out of a window, striking his head. The skull on the left side was indented and operation disclosed detachment of a small fragment of bone from the inner table without fracture of the outer. Twenty-one years after the fall violent epileptic attacks ensued, followed by intense pain in the head. By the end of April the right arm, leg, and face had become paralyzed, and by August of the same year he had become totally blind; there was, however, some intermittence of vision. When I first saw him, on May 30, 1887, there was some improvement in the paralysis. After an interval of several months, during which time a course of KI was continued, operation was done on December 15, 1887. Removal of the first button exposed the tumor, but it was larger than the opening. A second button was removed, and the opening was further enlarged, until it measured $3 \times 2\frac{1}{2}$ inches. The upper margin was $\frac{3}{4}$ inch from the midline. The tumor dipped behind the squamous portion of the temporal bone for half an inch. The dura was adherent to the brain, except at the margin of this large opening. I incised the dura one-quarter of an inch from the margin of the opening in the bone, and with my little finger, to my surprise and relief, enucleated the tumor with as little difficulty as one scoops an egg out of its shell. Hemorrhage was free but not alarming. The tumor was practically a foreign body, starting at the dura as a result of the constant irritation from the little loose fragment of the inner table broken off at the time of the accident and never consolidated with the skull. Every inspiration, and especially every impulse from the throbbing heart, produced slight movement of this fragment. The tumor weighed 3 ozs. 49 gr., and proved to be a pure fibroma. Eight days after the operation, the floor of the cavity, which was also the roof of the ventricle, evidently gave way, thus opening

* See JOURNAL, Vol. clxxviii, p. 767.

† See JOURNAL, Vol. clxxix, p. 35.

‡ Published in the Transactions of the Association of American Teachers of the Diseases of Children, 1917.

the roof of the lateral ventricle, and until the 5th week the cerebrospinal fluid continued to escape very freely. At the conclusion of the operation, two drainage tubes had been inserted and an abundant gauze dressing applied. The bone could not be replaced as the dura was gone. On the 14th day, a moderate hernia cerebri, crescentic in shape, had appeared, and from two small pin-holes at its middle, clear fluid, evidently cerebrospinal, continued to escape until the end of the fifth week. By the 71st day, the hernia cerebri had subsided until it was nearly on a level with the skull. On the 75th day this elevation had changed to a deep hollow 5.5 cm. in depth. Twenty-one years after the operation this depression was still present. A striking phenomenon was that whenever he sat upright, any muscular effort, and a change of posture, *e.g.*, leaning forward, caused this hollow to bulge about an inch beyond the level of the skull. To protect the brain against injury I bent a piece of tin to fit the surface of his head, covered it with black silk, and sewed this to the inside of a skull-cap which he always wore. Only three cerebral fibromata appear in Bernhard and Hale White's table of 580 intracranial tumors. I gave an "entirely favorable prognosis" at the time of operation, and thirty years have fully justified it. The patient died on January 29, 1918, and Dr. M. L. Davis of Lancaster, who had referred the patient to me, at once advised me, and Dr. Aller G. Ellis procured the brain, which the patient had promised to me many years before.

DR. CHARLES K. MILLS: I was present at this operation by Dr. Keen, which was the second one I had seen. The first was by Dr. Weir of New York, in a patient of Dr. Seguin. The long duration of life in Dr. Keen's case, with the comparatively good health of the patient, is of much interest. There are cases of fibromata which last for a long time, and in which the growth is not discovered until after death. Such a case was reported in Edinburgh in a well-known physician in which was discovered in a latent region of the brain a flat, hard fibromatous tumor. The appearance and disappearance of the hernia cerebri, because of differences in the position of the patient, is of extreme interest. With the patient in the recumbent position, the cerebrospinal fluid found its way, perhaps through the foramen of

Magendie, to the spaces around the spinal cord, and also perhaps into the extraventricular cerebral spaces. It probably flowed back to its original position when the hernia cerebri was visible. The small amount of paralysis present in the later stage of the case is probably explained by the occurrence of a very gradual compression of the cortex and subcortex, allowing a sort of functional adjustment. This has happened in long-standing hydrocephalus, and is a more likely explanation than that of compensation by other hemispheres of the brain.

TUBERCULOSIS IN THE ARMY.

COLONEL GEORGE E. BUSHNELL, U.S. Army, Retired: In examination of men for the Army the welfare of the Army is the first consideration. The examination should be made rapidly, with the idea of excluding manifest tuberculosis, of getting the affected men out quickly and filling their places without delay. The idea of speed was extremely foreign to most examiners. The work was standardized in the Surgeon-General's office and a minimum of 50 examinations per day was one of the directions. The belief held by most of the examiners, that it was better to wait until the cases were referred by the regimental surgeons, would delay the matter too long and would, in addition, create the presumption that the disease had been contracted while in the Service and was, therefore, pensionable. The plan tended to prevent too much weight being given to signs of slight organic change. If those believing any evidence of an old healed obsolete tuberculous lesion to be sufficient cause for rejection were afforded time for minute examination, many men perfectly fit to serve would be rejected, with injurious results to the Army. As a rule, a man who enters the military service with a not too large quiescent pulmonary lesion, improved in the long run in army life. It was directed that all cases of active tuberculosis should be rejected, also those with inactive lesions of any considerable size. Quiescent lesions above the clavicle were not regarded as of sufficient size to cause rejection. A further provision was that the diagnosis must be based upon positive signs. Many examiners wished to label some of the cases arrested tuberculosis, retain the men in service, and have them frequently examined. Such a man, however, would be spoiled as a soldier, although he may be the very best

physical specimen we have. Again, if labeled tuberculous from the beginning, the man is barred from being pensioned, which I consider an injustice. Two schools are represented in the diagnosis of tuberculosis: the first is the old school, which does not make the diagnosis until the signs are clearly marked. The other group, perhaps, should not be called a school because it is composed of a number of individuals who do not agree with one another. Recent official word from the French Secretary of War states that of the 86,000 men said to have tuberculosis in the first year of the war less than 50% were found upon reëxamination to have pulmonary tuberculosis. It is believed by some French authorities that 20% more truly represents this group. If, however, it were 50%, it would still mean that the transcendental diagnostician is wrong, that you cannot safely diagnosticate tuberculosis until you have definite signs. I consider this a vindication of what you might call the old school. While much has been said of the danger of infection of one adult by another, a study of the cases in the French army showed that the men who had broken down had brought the disease with them. The experience with the repatriated French civilians reported by Dr. Miller is a striking illustration of the fact that even semi-starvation and hardships of all kinds do not lead necessarily to the development of tuberculosis on a large scale. In the care of the tuberculous soldier, the Government has provided seven institutions for the treatment of the disease. The number of men who will remain under treatment will depend upon the matter of their compensation.

DR. JAMES ALEXANDER MILLER read a paper on "The Tuberculosis Situation in France."

DR. M. HOWARD RUSSELL: In the beginning of our work at Fort Niagara, Dr. Riesman and I thought it would be impossible to examine fifty men a day, but later found it could be easily done.

DR. THOMAS MCCRAE: Having had the experience of handling the men from the front in a base hospital, I believe it perfectly absurd to hold the view that a man who has had tuberculosis is probably going to be benefited by going to the front; this, when you consider the tremendous strain of being in the trenches, the loss of sleep, the crowding together in small areas, nearly all the men with some bronchitis. Would any of us who had had tuberculosis and who

are now in health consider living such a life? Why should we say that probably the soldiers will be benefited by it? Not only in the front-line trenches does this apply. It was very significant in my work, particularly with the Canadian soldiers, to find in the labor battalions, where the men were living under healthful conditions, the large number who came in with tuberculosis. Of these, probably the vast majority had the disease before. None of us know how many cases of tuberculosis in adults are instances of fresh infection and how many are the lighting up of old lesions. The examiner who passes a man with the signs of old tuberculosis is sowing the wind, and the medical officer abroad is the chap who will reap the whirlwind. From seeing the work "at the other end of the funnel," I believe we cannot be too rigid, for the sake of the Service and for the man, in the matter of our examinations for tuberculosis.

DR. JUDSON DALAND: Dr. Miller's observations clearly show that rural tuberculosis in France is no more common than here, and that the center of this disease is chiefly in Paris and in those cities possessing a large industrial population. This is also true of this country. It is most gratifying to know that the apprehensions felt by many thoughtful men of the probability of tubercular infection of our troops are baseless.

DR. D. J. MCCARTHY: In presenting to the College a short time ago a review of conditions in the Russian Army, I gave figures of the rejections for tuberculosis in the recruits in the Army for ten years, with the resultant relatively low tuberculosis percentage in the army. This percentage was lower than that in civil life. Little dependence can be placed upon statistics of repatriated prisoners from Germany and Austria in estimation of the total number of cases, because only the ill are returned.

DR. CHARLES J. HATFIELD: I should like to bear testimony to the fact that Col. Bushnell, besides being very enthusiastic, is also very patient, because he receives many suggestions from people interested in tuberculosis. Dr. McCrae gave expression to a feeling held by many of the examiners, relative to the difficulty of obtaining any standard by which a tuberculosis once diagnosed can be legitimately included in the Army. I would like to ask Colonel Bushnell in this connection,—how can

an examiner, where the signs of tuberculosis have been demonstrated, certify on paper that the man is sound,—that there is no tuberculosis? I understand that if the tuberculosis is actually recorded, such record will follow the man, will be known to his superior officer, and that it will have an effect upon his compensation later. Colonel Bushnell's experience in military service has given him a basis for his opinion of improvement under working conditions, and his opinion is to be highly considered. In connection with the National Association it has been my privilege to see how splendidly the Surgeon-General's Office has considered the question of tuberculosis in the Army and to note its coöperation with outside agencies wishing to have certain conditions fulfilled. I believe that our Army today, with the various measures enforced by the Surgeon-General, is in a splendid condition.

COLONEL BUSHNELL, closing: The difficulty in understanding how a man who has once had signs of tuberculosis can ever be regarded as a safe man depends entirely upon what is meant by tuberculosis, how much tuberculosis there has been, how many bacilli have been present. In my opinion there is hardly a man who, if looked at closely and studied with the x-ray, would not show some little signs of abnormality somewhere in the lung. I believe that some examiners could find that 90% of those present this evening have what some would call evidences of healed tuberculosis. Many come to me with the diagnosis of active tuberculosis in whom we can find no signs at all. In others, giving a diagnosis of healed tuberculosis we find signs varying from a misinterpretation of the normal signs in the right apex to a slight degree of evidence of old trouble. I am increasingly impressed with the fact that many perfectly healthy people show slight evidences of organic change in the apices of the lungs. It is one of the most difficult things in medicine to draw the line of demarcation between that which is normal and that which is abnormal in the apices, and to decide how large a healed lesion may be safely accepted for military service. Now, after three years, it is found that in the French Army probably two whole divisions sent home did not have tuberculosis. In our own Army, of 80 men sent back in one lot, only 25 were found by Dr. Webb to have signs of tuberculosis. Those coming over and being sent

back cost the Government \$5000 apiece. A local and temporary condition was called tuberculosis. The same thing is seen throughout the camps. We do not get together better on this subject because the pathologist and hospital physician see only the bad cases, while we see also the good cases.

Book Reviews.

General Principles of Therapeutics. By FRANCIS H. MCCRUDDEN, S.B., M.D., Director of Laboratories, Robert B. Brigham Hospital, Boston; assistant professor of applied Therapeutics, Tufts Medical School, Boston: Gregory, 1917.

This book fills a long felt want of those who have attempted to give instructions in the general principles of therapeutics, that of an elementary text-book. There are reference books dealing with the details of therapeutics; but there is no book which establishes a point of view regarding the many and confusing details of treatment such that these details may be contemplated, not as a vast number of empirical and unrelated elements, but as mutually dependent parts of a whole; a book that treats therapeutics as a science, as a branch of applied physiology. The present volume is intended as a start in this direction, and may be used most effectively to supplement a practical clinical course in therapeutics. The book outlines most clearly the best methods of treatment of diseases of the heart, the kidneys, the vessels, respiration, the blood, the gastro-intestinal tract, the general metabolism, and other chronic diseases.

Food For The Sick. By SOLOMON STROUSE, M.D., and MAUDE PERRY, A.B. Philadelphia and London: W. B. Saunders Co., 1917.

This book is both scientific and practical, and is written from the point of view of both the physician and the patient. It contains many valuable diets which may be used by the patient at home if he understands his condition and the treatment prescribed. Food is explained as the means of furnishing heat and energy to the body, and of repairing waste and building tissue. Food is classified into different elements, and charts giving the average composition of common American food products are furnished. The various factors which influence body needs are enumerated, and include: the activity of the individual, the kind

of work and environment, mental work, age and sex, climate and season, weight and build, and personal peculiarities. Menus for normal individuals and for the sick are suggested.

Various diets are discussed with reference to diseases, including: diabetes mellitus, gout, diseases of the kidney, the heart, stomach, liver, respiratory system, and diseases of the skin. Diets are also suggested for treatment of fevers, obesity, anemia, scurvy, and goitre.

A Treatise On Regional Surgery. By various authors. Edited by JOHN FAIRBAIRN BINNIE, A.M., C.M., F.A.C.S., Kansas City, Missouri, vol. III, with 521 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

The third and final volume of Binnie's treatise is a book of eight hundred pages, a little larger than the other volumes, and covering all surgical lesions of the extremities. It seems to the reviewer to be the best of the three volumes.

Drs. Lilienthal and Gerster contribute an excellent monograph on modern thoracic surgery, condensed into one hundred pages, the best that has thus far appeared. Dean Lewis writes most satisfactorily upon diseases of the upper, and Dr. Stanley Stillman upon those of the lower extremities. Dr. Lane submits a characteristic chapter on fractures in which the personal pronoun is used almost as frequently as the Lane plate is recommended—and that is continuous: he advises a plate and screws for fracture of the patella, without mentioning suture of the lateral expansions of the torn tendon; certainly inadequate treatment.

The book is profusely illustrated; and the short system now completed is worthy of study by all students and young surgeons.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. By CHARLES E. SIMON, B.A., M.D. Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School, and the College of Physicians and Surgeons, Baltimore, Maryland. 9th edition. Illustrated with 297 engravings and 28 plates. Philadelphia and New York: Lea and Febiger, 1918.

An extensive review of a book whose popularity survives nine editions hardly seems necessary, for the fact that repeated editions are demanded is a good index of merit and usefulness.

In the present edition many sections have been rewritten, and new matter added.

One finds the newer chemical methods for the estimation of blood sugar, blood urea, and

non-protein nitrogen; also an account of the more recent methods employed in the diagnosis of acidosis. An excellent chapter on the cerebrospinal fluid includes the technique of Lang's colloidal gold test.

The division of subject matter into two parts, the first dealing with technical matters, and the second with the essential factors of the laboratory diagnosis of various diseases, is a useful arrangement.

The plates and illustrations, especially those in the section on intestinal parasites, and those illustrating the formed elements of the blood, are excellent, and deserve favorable comment.

On the whole, this seems a worthy successor to previous editions of this valuable book.

The Medical Clinics of North America. Boston Number. Vol. 1, No. 4. Philadelphia and London: W. B. Saunders Co., 1918.

The Boston Number contains contributions by 8 internists; 3 pediatricians; 1 gynecologist; 2 rhinologists; 1 oral surgeon; 1 neurologist, and 2 roentgenologists. The Massachusetts General Hospital, the Peter Bent Brigham Hospital, the Robert Brigham Hospital, the Boston City Hospital, the Children's Hospital, and the Harvard Medical School are represented. Some of the articles are more or less formal presentations of cases, pathological conditions, or diagnostic methods; others are presented in the form of real clinics as given in the amphitheatre to students.

The number begins with a series of real clinics on the heart, by Dr. Henry A. Christian, in which Complete Heart Block; Partial Block, with Stokes-Adams' syndrome; digitalis Block in Auricular Fibrillation, and Chronic Myocarditis are taken up.

On the pediatric side, Dr. John Lovett Morse, Dr. Fritz B. Talbot, and Dr. Richard M. Smith consider respectively Empyema in Children; Eczema in Childhood; and Pyelitis in Infancy. These articles are presented in an entirely practical rather than theoretical way, and one cannot fail to be impressed by the beautifully concise and logical reasoning in which Dr. Morse considers the differential diagnosis between empyema and other chest conditions.

It is obviously impossible to comment on all of these eighteen excellent contributions, but to the reviewer the paper of Dr. W. P. Graves on Ovarian Organo-Therapy, the presentation of Pathological Hemorrhage by Dr. George R. Minot, and the clinic of Dr. J. H. Thomas on The Relation of the Teeth and Jaws to General Medicine, seem of particular interest and value.

The number closes with a contribution by Dr. G. W. Holmes on The Examination of the Heart and Great Vessels by Means of X-ray.

Typhoid Fever. Considered as a Problem of Scientific Medicine. By FREDERICK P. GAY, Professor of Pathology in the University of California. New York: The MacMillan Co., 1918.

In the words of the preface this treatise is an attempted exposition of the problem of typhoid. . . . It is not primarily designed to aid directly in the clinic or the laboratory, but should serve to point out the relations of one to the other, to indicate the dependence of practice on theory, and the happy applicability to human need of investigation that may have seemed to aim merely at the gratification of intellectual curiosity.

Chapter I begins with a general survey of the development of knowledge concerning typhoid fever, and the book closes, Chapter XIV, with suggested methods of advance in solving the typhoid problem. In intervening chapters, such questions as modes of infection, pathogenesis, diagnosis, the carrier condition, natural and acquired resistance, the protective value of vaccine against typhoid, and paratyphoid are considered. A bibliography of some 40 pages, covering references quoted in the text, adds to the value of the work.

To the man interested in the broader aspects of medicine, this book makes a strong appeal. There should be more of the same sort.

American Addresses on War Surgery. By SIR BERKELEY MOYNIHAN, M.S., F.R.C.S. Philadelphia and London: W. B. Saunders Company, 1917.

The addresses included in this volume were delivered by their distinguished author in Chicago and elsewhere during October and November, 1917. They have been brought together in book form in the hope that they may help American surgeons to some appreciation of the causes and conditions of the war, and afford some help to them in their treatment of the many new phases of surgical diseases with which they will be called upon to deal. The first paper deals with the causes of the war, and contains a striking comparison of German and English ideals. The rest of the book is devoted to the discussion of the methods which have been found to be most satisfactory in the treatment of gunshot wounds, wounds of the knee-joint, injuries to the peripheral nerves, and gunshot wounds of the lungs and pleura. Aside from the fact that the book contains most useful surgical information, the material is presented in a way which makes it intensely interesting reading.

The Treatment of Diabetes Mellitus. By ELIOTT P. JOSLIN, M.D., M.A.; Assistant Professor of Medicine, Harvard Medical School;

Consulting Physician, Boston City Hospital; Collaborator to the Nutrition Laboratory of the Carnegie Laboratory. Philadelphia and New York: Lea and Febiger. 1918.

In view of the enthusiastic reception and favorable comment accorded the first edition of this remarkable book, a review of the second edition seems almost uncalled for.

As a matter of record, however, it is sufficient to note that the book has been largely rewritten; 120 pages added; somewhat greater definiteness given in describing treatment, especially as to acid poisoning; and, in the words of the author, the book as a whole enriched and amplified by another year's study and experience with new and old diabetic patients.

Fifty-nine new tables and ten illustrations have been added.

It is impossible to commend too highly this valuable book.

Nutrition and Clinical Dietetics. By HERBERT S. CARTER, M.A., M.D.; Associate in Clinical Medicine, Columbia University; PAUL E. HOWE, M.A., Ph.D., Assistant Professor of Biological Chemistry, Columbia University; and HOWARD H. MASON, A.B., M.D., Instructor in Diseases of Children, Columbia University. Philadelphia and New York: Lea and Febiger. 1917.

A comprehensive and excellently arranged book, presenting in a readable form the more recent knowledge in respect to the nature of food and its utilization in health and disease.

The authors have happily avoided the ultra-scientific attitude and admit the consciousness of the fact that dietetics is far from a mature science, and that a book founded entirely on facts proved in the laboratory is as yet impossible.

The book is divided into four parts: Part I, dealing with digestion, absorption, and excretion, energy and food requirements, and food economics. Part II takes up the classification, analysis and digestibility of food. Part III deals with feeding in infancy and childhood. Part IV, which in point of space takes up rather more than half the book, deals with feeding in disease.

In the presentation of diet in diabetes, one finds, in addition to the older theories of diet a consideration of the Allen treatment, as well as Joslin's résumé of the Allen treatment.

The matter of food anaphylaxis, recognized in the discussion of asthma, receives no consideration in the section devoted to diet in eczema.

On the whole, a useful and reasonable book, in which various recognized principles are discussed, intelligently commented upon, with but little attempt to be dogmatic.

A Treatise on Clinical Medicine. By WILLIAM HANNA THOMPSON, M.D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; ex-President of the New York Academy of Medicine, etc. Second edition revised. Philadelphia and London: W. B. Saunders Company. 1918.

A pretentious book, covering the whole field of clinical medicine, including diseases of the nervous system, obviously written by a man of wide clinical experience, and a broad general knowledge of medicine. The type is good, and so far as the publisher's work is concerned, an excellent piece of work.

Having said this much, one finds little to commend and much to criticize.

The classification of infectious diseases is unique, not to say weird. Just why typhoid, tuberculosis, cerebrospinal meningitis and leprosy should be excluded from the list of infections directly communicable and placed in the group of infections communicable by intermediate carriers, is not clear. Nor again, why angina pectoris should be discussed under functional disease of the heart.

Wherever one turns one is struck by the almost utter disregard of later work and advancement in clinical medicine, much of which, like the work of McKenzie and Lewis on the heart, seems now a fundamental part of our medical knowledge.

It is difficult to see how a modern text-book, published in 1918, can entirely disregard the work of Nicolle and Conseil, Anderson and Goldberger, and the agency of the body louse in the transmission of typhus fever, and still regard the disease as one comparable to measles in its mode of transmission and infection. It is also difficult to understand how a modern article on diabetes can completely ignore the work of Allen and Joslin, and in the matter of dietetic treatment fall back on a diet list from Osler's Practice of Medicine and the oatmeal diet of von Noorden. Any intelligent discussion of acidosis or modern tests for measuring its extent are conspicuous by their absence.

In view of the advances made by McKenzie, Lewis, and others, in the interpretation of abnormalities of the heart-beat, it seems a bit out of place to have paroxysmal tachycardia discussed as a strange functional disorder. Furthermore, where later methods are not entirely ignored, they are presented in an academic rather than a practical manner. For example: In the treatment of a case of epidemic cerebrospinal meningitis, the practitioner who finds a case on his hands will hardly be helped much by reading that "the only measure that has proved of real service is the administration of

serum prepared by Dr. Simon Flexner, the use of which has been favorably reported in widely distributed epidemics both in America and Europe." In the discussion of salvarsan in syphilis, one is surprised to learn that neo-salvarsan has now quite superseded salvarsan in practice, and that the technic for preparing the dose for intramuscular injection is to dissolve 0.1 grams in 180 cc. of freshly distilled sterile water.

Wherever one opens the book one is confronted by glaring inaccuracies of statement, many of which it is kinder to regard as errors in proof reading; the description of the typhoid bacillus as an organism 1 to 3 mm. in length and 5 to 8 mm. in diameter may be cited as a case in point.

However, although the reviewer can see little to commend, and much to criticize, the fact that it has been twice reprinted since 1914, besides being revised and reprinted in 1918, shows that it may be a valuable book for people who like it.

The Nervous System and its Conservation. By PERCY GOLDTHWAIT STILES. Second Edition. Revised. Philadelphia and London: W. B. Saunders Company. 1917.

This book deals with the anatomy, physiology, and hygiene of the nervous system. The structure of the neuromuscular system and the elements of nerve physiology are discussed. These subjects are treated in a scientific way; but in addition, the work gives to the reader many valuable suggestions which are of practical assistance to him in every-day life. The cerebrum is discussed with reference to its importance in human development and the life of the individual. Emotion and its stimulating effects are dealt with. Dreams are explained with reference to their importance in understanding the nervous system and its needs. The causes of nervous impairment are given in detail. Among the conditions necessary for maintaining the nervous system in a normal state are mentioned: sound inheritance, correction of physical defects, favorable environmental conditions,—such as fresh air, well-regulated illumination,—sleep, and variety in occupation and thought. The chief value of this book lies in its practical application of a thorough understanding of the nervous system to its conservation, and in the incentive which it inspires toward working out its advice.

A Handbook for School Nurses. By HELEN W. KELLY, R.N., and MABEL C. BRADSHAW, R.N. New York: MacMillan Co., 1918.

With the increasing demand for school nurses throughout the country, comes a corresponding demand for information as to how

best to organize and carry on the work; and directors and nurses turn for advice to the larger cities, where the work has passed the experimental stage, and where definite programs have been worked out. The writers of this handbook are both directing heads of established systems of school nursing, Miss Kelly being the Superintendent of Field Nurses of the Department of Health of Chicago, and Miss Bradshaw being Superintendent of School Nurses in Milwaukee, and their treatment of the subject should prove most useful. The book deals with the organization and administration of school nursing; gives the plan and character of the work, treating prevention of contagion, inspections, emergencies, physical examinations, vaccinations, cultures, dressings, care of minor contagious diseases, home calls, dispensaries, and hospitals; further touches upon educational work carried out by routine talks and health leagues; a chapter is devoted to community nursing, and another to the keeping of records.

A Handbook on Antiseptics. By HENRY DRYSDALE DAKIN, D. Sc., F.I.C., F.R.S. and EDWARD KELLOGG DUNHAM, M.D., Emeritus Professor of Pathology, University and Bellevue Hospital Medical College; Major, Medical Officers' Reserve Corps, U. S. Army. New York: The MacMillan Company, 1917.

The main object of this handbook is to give a concise account of the chief chemical antiseptics which have been found useful for surgical purposes during the present war. Many publications on this subject are not readily accessible to those who wish to inform themselves as to current European practice, and so this book has been compiled for the use of surgeons and others in this country who are now taking up military duties connected with the care of the wounded. The unparalleled severity and frequency of wound infections in the present war has led to considerable advances in the knowledge of antiseptics and of methods for their successful employment. The handbook presents in convenient form the methods of preparation and use of various new antiseptics and modifications of old ones which have received some measure of endorsement by military surgeons during the past three years. A short statement of the use of antiseptics in the treatment of carriers of infectious organisms, and of the use of certain disinfectants of the chlorine group for the sterilization of drinking water and the disinfection of hospital ships is also included.

Acute Poliomyelitis. By GEORGE DRAPER, M.D. Philadelphia: P. Blakiston's Son & Co. 1917.

This book is a practical guide to the diagnosis, care, and specific treatment of epidemic

poliomyelitis. In it, Dr. Draper has combined clinical and experimental data derived mainly from his two years' experience in dealing with this disease at Rockefeller Institute. The purpose of the book is to present the more recent conception of this disease by correlating as far as possible all the facts at present available. It is designed to develop the idea that acute poliomyelitis is a general infectious disease, in the course of which paralysis is but an accidental and incidental occurrence. The book contains a history of the knowledge of the disease from the clinical, pathological, and experimental avenues of investigation. The etiology of poliomyelitis is considered under two heads: susceptibility and active forces of the disease. The author gives the results of careful study of the epidemiological, experimental, and pathological aspects of the disease. Types of paralysis are classified, and symptoms are discussed. Many cases are cited of treatment by prophylaxis and serum.

Medical Service at the Front. By LIEUT.-COL. JOHN McCOMBE, C.A.M.C. and CAPTAIN A. F. MENZIES, M.C., C.A.M.C. Philadelphia and New York: Lea & Febiger. 1918.

There has recently been published a book entitled "Medical Service at the Front," which describes the Canadian and British medical service on the Western front. Military formations—infantry, artillery, engineers, field ambulances, divisional headquarters, transportation of ammunition and supplies—are explained. The responsibilities of the regimental medical officer at his aid post, and his activities, both preventive and curative, are considered. The book contains a detailed description of the ambulance service; its medical and transport aspects in peace warfare, its equipment and functions, the advance and main dressing stations, divisional rest stations, the scabies hospital, and the motor ambulance convoys. The field ambulance in time of battle is considered under the following heads: the advance dressing station, the walking wounded station, and the main dressing station. The factors which determine the selection of field ambulance positions are indicated, and the respective authority and responsibility of administrative officers and the organization of the corps units are discussed. The medical arrangements in the cavalry division, essentially the same as those in the infantry, include pack stations, transport sections, and field hospital sections. The functions of the clearing stations during peace and battle are mentioned. This book furnishes an account, both accurate and interesting, of the medical service at the front.

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SOME FACTORS IN SURGICAL SHOCK.

DESPITE the fact that the question of shock is so important in modern surgery, and especially in modern military surgery, only recent progress has been made in finding the basic causes. In civil surgery, shock has its important place, but it never has reached the proportional importance that it has attained in military work. It is the most important presurgical consideration and the most common postoperative complication. It must be remembered that whatever deleterious influences can bear on the causation of this condition, it is sure to be present in military conditions requiring the attention of the military surgeon. It had been the tendency to ascribe deaths caused by hemorrhage, intracranial pressures, intoxications, heart failures, etc., to shock. But shock is merely a symptomatic designation for the more or less gradual but positive fall of blood pressure, ending in death unless relieved, and so often accompanying these conditions. Shock and its

attendant fall in blood pressure may occur without any of these conditions. The fall of blood pressure is due, in all likelihood, to a paresis of the musculature of the arterioles. However, many observers believe that this fall of blood pressure in shock is due to a fall in pressure in the heart or to resistance or loss of tone in other parts of the circulatory apparatus. But it is the arteriole that is the main dynamic element of the circulation, and not in this respect so much the other elements. The belief that shock is due to hemorrhage, particularly to a self-bleeding into the splanchnic veins, which for some reason accumulate all the blood, is a recent theory. But there may be marked fall of blood pressure without this form of bleeding. On the other hand, ascribing the fall of blood pressure generally and vaguely to a disturbance in the vasomotor system does not satisfy, especially in prophylaxis and in treatment.

As a later and very plausible etiological factor in the causation of surgical shock is the part played by the adrenals (Sweet, *American Journal Medical Science*, May, 1918). Any profound injury to the adrenals can cause the dangerous fall in blood pressure characterizing shock. There can be little doubt of the part that the internal secretion of the adrenals plays in the maintenance of blood pressure and circulatory tone. Systemic intoxications that affect the adrenals, as well as injury to them physically, may affect the adrenals. Anesthesia, particularly chloroform, has a deleterious effect on the adrenals. It is for this reason that chloroform is such a dangerous and treacherous anesthetic, and is so much eschewed in military surgery. The administration of adrenalin in so-called shock cases not only raises the blood pressure but supplies the secretory element of the adrenals prevented from reaching the system naturally because of some intoxication or injury to them. When the adrenals are injured by circulating toxins, saline transfusion is indicated, or where the source is intestinal appropriate washings are indicated.

Crile's theory of shock prevention in surgical operations assumes an injury to the nervous centers by the continual stimulations carried up the cord. His method of anoci-association has been followed with good results, but his theory of causation is not borne out by the

present knowledge of physiological elements in this regard. Experimentally, stimulations while impulses are sent up the cord are abolished from the higher centers by ether anesthesia. In order that Crile's facts shall agree with the physiological theory, something more must be learned on this subject. In any event, the multitude of considerations and theories, combined with the importance of the shock element, requires that the surgeon avail himself of every source of assistance, and be prepared to meet the indication. Hemorrhage must be treated as such, cranial pressure relieved, heart failure treated by stimulation, and even venesection rather than transfusion, and so on; but they should not all be called shock and given the same kind of treatment.

INTERRELATION BETWEEN MENTAL DEFECT AND DISORDER.

No persistent attempt is any longer made to draw a sharp line of demarkation between the various grades of mental deficiency or between the various types of mental disorder. At some point they all shade into each other. Yet there is a distinct tendency to separate cases of mental deficiency from mental disorder, although it is pretty well recognized that there are some instances in which some one or other form of mental disorder is engrafted on a primary mental deficiency. Both the mental deficiency and the mental disorder can well go together. The basic element at the bottom of all mental conditions is the same—the manifestations can take any form. They are merely different symptoms of the same disease; just as in mental disorders, it is found that the defective child has a greater range of personal traits or peculiarities than the normal one. Indeed, any one of these various types of personality may savor of the peculiar personalities found in frank cases of insanity. It is a fallacy to consider the defective child as one retarded in mental development merely to a certain degree. It is more logical to consider the defective child as a different type of individual than the normal. The retardation is rarely uniform, as would be expected in merely simple retardation of the mental development. More often the defective child's mental faculties may have some

of their phases developed quite beyond that expected of the normal child. It is for this reason that the so-called atypical child with precocious constitution is rightly classed as a defective. In a manner, it may be said that the normal mentality in a child consists of a uniformity of development. A one-sided development must always be viewed with suspicion no matter how advanced this one side appears to be. Whenever there is a lack of equilibrium in development or in the ultimate mental equipment, there is sure to be a defective state.

Both the mentally defective and the mentally disordered show similarity in their moral conceptions. Both are often guilty of anti-social acts and often come under observation through the criminal authorities. In both there is a disharmony in their effective relations, because they are out of touch with their environment. Almost any individual will fail to measure up to the intelligence tests who for some reason, whether because of mental deficiency or mental disturbance, is out of touch with his environment. It is well understood, for example, that the epileptic conforms to both the defective and the insane types. Indeed, many of the mental peculiarities of the defective child are of epileptic character, even in the absence of convulsive seizures. The peculiar psychoses of the epileptic with seizures is, of course, well known. Almost any type of mental disorder or mental symptoms may be found accompanying an initial mental deficiency—the shut-in, the manic or the manic-depressed, the paranoid and the epileptic types. The more that mental conditions are studied, the more it is understood that all mental conditions have the universal hereditary basis, that is, one pathological ground, but that the manifestations may be quite varied. They do not conform to any hard and fast conception of type. A better understanding of the relationship between mental deficiency and disorder is necessary for prophylaxis and treatment.

BLOOD TRANSFUSION AND SALINE INFUSION.

ALTHOUGH the technic of blood transfusion is now highly perfected and performed in severe hemorrhage, the idiopathic anemias, blood dis-

eases and shock, the procedure has been known and practised for a long time. The transfusion of blood to man from other species than man is fraught with danger because of the hemolytic action of such blood. It is on this fact that the whole foundation for all the studies in hemolysis, serum diagnosis and serum therapeutics is based. But even the blood of the same species is in the nature of foreign protein and is accompanied by certain toxic effects and symptoms, commonly known as serum sickness, when injected for diagnostic or therapeutic purposes in the form of sera. However, while severe symptoms may occur from such injection, death occurs rather rarely, and then probably only because of an extreme amount of anaphylactic susceptibility. The notion that the transfusion of blood will supply something to the body that has been removed by the hemorrhage has not much foundation. Even after severe hemorrhage there remain enough blood elements to carry on body function. Moreover, it must be remembered that in so far as the value of the blood elements is concerned, it depends upon their power of bringing to the body tissues those elements either taken in by other organs of the body or manufactured by them. These cannot be supplied by even one large transfusion. On the other hand, a severe hemorrhage robs the blood column of so much fluid that the vascular apparatus has not enough of a column on which to work, and must cease working unless this column is replaced. It is for this reason that the saline infusion is so frequently given after severe hemorrhage in order to replace the fallen column and so that the heart will have something to work on. Moreover, in severe hemorrhage, where so much fluid is lost from the blood, there is a tendency to try to replace it by withdrawal from other tissues and organs. The result is that other organs suffer. The saline infusion immediately on top of a severe hemorrhage not only helps to replace the fallen blood column but supplies fluid to those organs and tissues that have been deprived of it. Of course, the saline infusion has the disadvantage that it does not possess the blood viscosity, and cannot therefore mix with it. Besides, it may filter through the blood vessels and cause edema. Unless the saline concentration is adequate it may entirely fail. When the question of saline infusion comes up, the solution in respect to concentra-

tion must be accurately made up to meet the needs of the body. In any event, a chief advantage of the saline infusion over the blood transfusion is that it is immediately available to replace the blood column or the body fluids, and there is not the untoward danger from the introduction of foreign proteins. But in chronic anemias of idiopathic or secondary origin, where the immediate urgent blood indications have passed, the massive infusion of salines may so dilute the hemoglobin, perhaps already slowly reforming, as to destroy any chance for further reformation, and recovery. Whether in these cases the transfusion of blood will add at least this element of the blood is questioned on theoretic grounds, although practically there is much clinical evidence to confirm this contention.



FOOD POISONING.

IN food-conservation work, one of the most important problems is the determination of safe and unsafe foods. All the available food must be preserved and utilized, and methods must be devised which make for efficiency. This has been made a special research problem by the Department of Preventive Medicine and Hygiene of the Harvard Medical School under a grant from the National Canners' Association.

During the past year an effort has been made to get in touch with outbreaks of food poisoning and infections in order that definite knowledge might be obtained as to the origin of these cases. To be of value, reports and investigations must be immediate or else little material can be obtained, and no definite conclusions can be drawn. It has been difficult to get into immediate touch with outbreaks of food sickness, and a renewed effort is being made during the second year of the work, with the hope that those individuals who are in a position to do so will immediately report the occurrence of any cases of sickness attributed to food. In this problem there must be great dependence upon those who are practising physicians or health workers, and who by the very nature of their work are the first to come in contact with such cases.

If there occurs in your community any case, or cases, which you think are attributable to food in any way, will you not telephone

(charges reversed) the DEPARTMENT OF PREVENTIVE MEDICINE AND HYGIENE, Harvard Medical School, Boston; telephone, Brookline 2380. It is equally important that you SAVE all specimens of FECES AND VOMITUS from the affected individuals, and as large portions as possible of SUSPECTED FOODS. An investigator will then be sent out without expense to the community, and an effort will be made to establish the cause of the trouble.

M. J. ROSENAU,
Harvard Medical School.

MEDICAL NOTES.

THE BLINDED IN THE HALIFAX DISASTER.—The Department of Militia and Defence, Canada, has issued an intermediate medical report of the disaster which overwhelmed Halifax, Nova Scotia, on Dec. 6th last. As nearly as can be estimated, some 1500 people were killed and approximately 5000 injured. Of that number there were totally blind, 41 cases; one eye enucleated, 87 cases; doubtful as yet, 61 cases; total, 189 cases of eye injury. An interval of some 30 seconds took place between the first and second explosions. After the first explosion large numbers of people rushed to their windows and were looking out. The force of the explosion was sufficient to drive bits of glass clean through plaster walls and into doors at the far sides of rooms. As the result of this force and the position of the people, pieces of glass were driven into the faces of the onlookers, the eyes being specially affected. Hundreds are disfigured for life with ghastly scars. In addition to the above figures, there are 144 other cases where the final information from the social workers who follow these cases to their homes is yet incomplete. The Aesculapian Club, Toronto, has contributed \$200,000 to the Endowment Fund of the Halifax School for the Blind. The report gives the following testimony to the great aid of physicians, surgeons, and nurses from the United States:—

"Too much cannot be said in praise of the American doctors, nurses, and social helpers. Their work was excellent, their spirit willing, and their assistance generous and invaluable. Some of the best surgeons in Massachusetts, Rhode Island, and Maine were represented. Special mention must be made of the American Red Cross unit from Boston, under the very capable leadership of Dr. W. E. Ladd. This unit was fully equipped, and remained in Halifax, doing excellent work, until Jan. 5th, 1918."

HEALTH REPORT OF MONTCLAIR, N. J.—The twenty-third report of the Board of Health of the town of Montclair, New Jersey, has been submitted for 1917. The report of the chemist shows that the town water, which has been examined both chemically and bacteriologically, has been uniformly good. Cultures and blood have been examined for diphtheria, typhoid, tuberculosis, and malaria. The report of the health officer records legal actions for violation of the Sanitary Code, and a resolution adopted by the Board for compulsory vaccination. Detailed statistics are given regarding population, deaths, births, marriages, and communicable diseases. The infant mortality rate for 1917 was 66 for the white population, 169 for the colored, and 78 for the Italian. Details are given relative to disinfection, complaints, fly suppression, plumbing, and the supervision of meat, milk, cream, and ice cream supplies and bakeries.

CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.—The thirty-third annual meeting of the Conference of State and Provincial Boards of Health of North America was held in Washington, D. C., on June 5 and 6. An address was made by the president, Dr. J. S. B. Pratt, and Conference Committees were appointed. On June 5 reports were given of the committees dealing with conservation of vision, recent advances in sanitary laws, organization and practice, courses of study in public health and sanitary matters, sanitary policy under war conditions, pellagra, terminal disinfection, pneumonia, and the war tuberculosis problem. Addresses were given by Dr. Mathias Nicoll, Jr., Deputy Commissioner, New York State Department of Health, on "The Diagnosis of Cerebrospinal Meningitis," and by Dr. Rufus I. Cole, Rockefeller Institute, on "Pneumonia in the Army."

On June 6, reports were given of committees dealing with the progress of full-time district health officer legislation, the extension of Federal assistance in rural sanitation to the several States, and activities in public health matters by Federal Departments other than the United States Public Health Service. Addresses dealing with child conservation were given by Dr. Taliaferro Clark, U. S. P. H. S., Director, Bureau of Sanitary Service, American Red Cross, by Dr. Alonzo Taylor, Miss Mary Beard, R.N., Dr. C. St. Clair Drake, Illinois, and Dr. B. F.

Royer, Pa. Venereal diseases were discussed by W. F. Snow, M.D., Major, Medical Reserve Corps, Dr. A. J. McLaughlin, Assistant Surgeon-General, U.S.P.H.S., and Dr. H. G. Irvine, Minnesota.

COLOR BLINDNESS AMONG U. S. SEAMEN.—The importance of differentiating between those who are dangerously color blind—that is, unable at all times to distinguish between red and green—and those who are only slightly color-blind is brought out in a recent study conducted by the U. S. Public Health Service and reported in Public Health Bulletin No. 92.

The following classes are regarded as dangerously color blind and therefore to be excluded from positions in which they would be required to read colored signal lights: (1) those who are able to see but three or less colors in the spectrum (the normal person sees six or seven); (2) those who see more than three colors in the spectrum, but who have the red end so shortened as to prevent the recognition of a red light at a distance of two miles; and (3) those with a central scotoma (that is, a blind or partly blind area in the field of vision) for red and green.

It was concluded that this class of persons could be distinguished from those harmlessly color blind by the use of the Edridge-Green color lantern, which was found preferable to colored yarns. The theories on which the color lantern is based are given in detail in the publication.

Another feature of the investigation was the study of the prevalence of color blindness. Excluding those able to distinguish five colors in the spectrum, it was found that color blindness occurs in about 8.6% of men and 2.2% of women. Color blindness of a degree dangerous in occupations requiring the recognition of colored signal lights was found to occur in about 3.1% of men and 0.7% of women. Among refractive conditions of the eye, color blindness occurs least frequently in eyes apparently without demonstrable refractive error; it occurs most frequently in eyes showing mixed astigmatism.

The examinations were made as a part of other studies of the effect of illumination on vision, conducted as a part of an illumination survey of the Federal Department buildings in Washington, D. C. One thousand persons were

tested with the Edridge-Green lantern to determine both the value of the lantern and the effect, if any, of refractive conditions, lesions, and anomalies of the eye, and also of sex, upon different degrees of color perception.

A special study of the Jennings self-recording worsted test was also made, 50 persons being tested with this and other tests. The results with the Jennings test were found to be too inaccurate for most work, although it was found to be superior to other tests in certain lines of work where great accuracy and the classification of color defects were not essential.

RESOLUTIONS ADOPTED AT ANNUAL CONFERENCE OF HEALTH OFFICERS.—The resolutions adopted at the 16th annual conference of State and Territorial health authorities with the United States Public Health Service, held in Washington on June 3 and 4, 1918, are printed in the Public Health Report issued for June 14, 1918. In regard to rural sanitation, it has been resolved,

“That the 16th annual conference of State and Territorial health authorities with the United States Public Health Service indorses the principle of Federal aid extension as the best means for the coördination of and making effective the work of the National, State, and local rural governments for the advancement of rural sanitation”; and

“That this conference respectfully urge the United States Public Health Service to take such steps as to secure the necessary suitable Federal legislation”; and

“That the State health organizations represented in this conference pledge their active support to the United States Public Health Service in the efforts to secure the aforesaid legislation.”

Another resolution adopted, concerning the health of industrial workers, advocates that a Federal system of supervision of the health of war industrial centers be established by co-operation of the Public Health Service with State and local health and labor authorities. Concerning vaccination, it was resolved that the State of Arkansas be congratulated on having a compulsory vaccination law. In regard to the control of venereal diseases, it was resolved to indorse the principle of the Chamberlain-Kahn bill. A resolution was made relative to the committee on sanitary disposal of

human excreta, with a definite view to the preparation of plans and specifications for standard types of closets suitable to the variety of economic, geologic, and climatic conditions of this country. It was resolved, in regard to the loss of personnel from the State and local health organizations, that the United States Public Health Service ascertain by questionnaire the number of public health workers that have left the employ of the States for Federal service. Another resolution was passed providing that a committee of five be appointed to confer with the committee on sanitary policy under war conditions.

WAR NOTES.

AMERICAN RED CROSS GIVES SWISS SOCIETY \$100,000.—Charles P. Bennett, representative of the American Red Cross in Switzerland, has remitted \$100,000 to the Swiss Red Cross, as an appreciation on the part of America for the work Switzerland has done for the victims of the war, especially the wounded prisoners of the Entente Nations in Germany.

AMERICAN HOSPITAL IN PLYMOUTH, ENGLAND.—Major General Cooper gave a garden party, on June 15, in honor of the staff of the American Base Hospital. Americans numbering 350, including 120 nurses in motor ambulances, paraded through the principal streets of the city, headed by the Mayor and prominent naval and military officials.

BASE HOSPITAL COMPLETED.—The United States base hospital on Fox Hills, Staten Island, has been completed in less than half the scheduled time. The thirty buildings are capable of accommodating 3000 patients. They were practically finished forty-two days after the work started. It was expected to take ninety days. The hospital will probably be enlarged soon to double its present capacity.

It is reported that the Government has taken over the new concrete building of a paper manufacturing concern at Grassmere as a storehouse for the hospital.

HOME GIVEN FOR NAVY HOSPITAL.—Commodore and Mrs. Morton F. Plant, of Brandford House, Eastern Point, Connecticut, have given to the Navy Department for the duration of the war, the use of the Watson House for a hospital for convalescing sailors and soldiers. The use of the residence is accompanied by a gift of \$10,000 to equip the hospital.

The building is located on the bank of the Thames river, and is ideally adapted for the purpose to which it will be put. The Navy Department has accepted the use of the house and the gift of \$10,000 and will immediately start to make the necessary alterations. The house contains a large number of rooms, and it is expected that it will accommodate at least 65 patients.

WAR RELIEF FUNDS.—On July 6, the totals of the principal New England War Relief funds reached the following amounts:

Belgian fund	\$682,568.54
French Wounded fund	380,187.44
French Orphanage fund	378,442.60

SCHOOL FOR WAR NURSES AT CAMP DEVENS.—The War Department is organizing training schools for nurses in some of the army hospitals and camps. The first training camp for nurses may be opened at Camp Devens. The plan is to open each training school with a class of twenty-five student nurses and add to this number in precisely the same way that civilian hospitals take in new classes.

The object of these camps is to train young women of at least high school education in these military hospitals as they train them in civil institutions, by giving them practical work in the wards and theoretical training in the school rooms.

The students will do there, as they do in the civilian training schools, the major part of the manual labor of the nursing and release so many more trained nurses for the more difficult phases of military nursing.

To perfect them in the entire course, it will be necessary to transfer them for a part of their three years' course to some affiliated civilian hospital. They will do this only in case they can be spared from army work, for they are regarded as cadets and midshipmen, ready to be called upon as partly trained."

While these schools are intended to supplement the Army Nurse Corps, they will be valuable also in reconstruction work, and will extend both to the men disabled in the war and to the women who will break down through the strain of war hardships.

ACADEMIC HONOR FOR MAJOR HARVEY CUSHING.—A recent issue of the JOURNAL has noted the conferring of the honorary fellowship of the Royal College of Surgeons in Ireland on Major Harvey Cushing, professor of surgery at Harvard University and now in the United

States Army. The *Lancet* has published the following statement:

The College "has been singularly happy in its latest choice, as Major Cushing, by his professional eminence, will bring credit to his adopted College, while his election is a compliment to the service of which he is so good a representative. For the past twelve months, our troops in France have been so fortunate as to have his skill at their service. Major Cushing is already an honorary Fellow of the Royal College of Surgeons of England. The College is very chary of electing honorary Fellows, and in its whole history has admitted only some threescore."

THE RETIREMENT OF SIR ARTHUR SLOGGETT: APPOINTMENT OF LIEUTENANT-GENERAL BURTEHAELL.—The following account of the retirement of Sir Arthur Sloggett and of the appointment of Lieutenant-General Burtchaell, has been published in the *Lancet*:

"Sir Arthur Sloggett, who has filled for three and a half strenuous years the position of Director-General of Medical Service on the Western front, has retired on reaching the age-limit for service on the Active List. His elasticity of mind, receptiveness in respect of new ideas, and acumen in seizing on their essential points, his frank recognition that his own knowledge on many subjects could not be equal to that of the various experts, his lack of fussiness, and his sense of fairness were the qualities that commanded for him the respect of his colleagues in all ranks.

His successor, Lieutenant-General C. H. Burtchaell, has had an unrivalled experience of army medical administration at home and abroad, with the Indian N.W. Frontier campaign of 1897, and as staff officer to Lord Methuen's division of the South African Field Force. In 1907 he was appointed headquarters staff of the Irish Command, until his transference to the War Office as Assistant Director-General in June, 1910. Since October, 1914, he has been in France, and closely associated in the development of the reorganizations required to meet the changing needs of a growing army. To his intimate knowledge of the life and requirements of the British soldier, General Burtchaell has added during the last two years a close association with the Overseas Forces which will stand him in good stead and act as a firm bond between the medical services. It is of particular advantage to know that the appointment of General Burtchaell is gratifying to the Overseas Forces; the Canadians especially welcome his appointment, for he came into close association with their forces at the second battle of Ypres, since when the bond of

sympathy has continued to strengthen. General Burtchaell assumes his vast responsibilities at a critical juncture, but his familiarity with the problems of military life, as they must affect professional organization and efficiency, will enable him to act with the directness that makes for success."

BOSTON SURGEONS ADVANCED IN RANK.—Dr. Harvey Cushing and Dr. Joel E. Goldthwait of Boston and Dr. George W. Crile of Cleveland, Ohio, have been promoted from the rank of major to that of lieutenant-colonel.

25,000 TRAINED NURSES NEEDED.—At a mass meeting held in the State House to rouse enthusiasm for the recruiting of girls for nursing in army and civilian hospitals, Miss Elizabeth Ross, of the nursing division of the Red Cross, said that there are fifteen miles of hospitals at the front which must be manned by American girls. Besides this, there are forty army hospitals in this country which need trained workers.

Miss Mary T. Beard of the Red Cross said that 25,000 girls are needed by January 1, to fill the ranks of those who have gone to the front. She asked each girl present at the meeting to endeavor to secure five friends to join.

Miss Anne Strong of Simmons College said that parents must be prepared to give their daughters to the country as well as their sons. She alluded to the fact that one of the proposed army hospitals is to be located at Camp Devens, and urged all New England young women in a position to do so to enlist for service in this hospital or the many other civilian institutions in this section.

Major H. E. Ernst, a member of the medical staff, said that there is no fear that girls joining for a three-year course will be removed from training through the hospitals closing.

FOUR BAY STATE MEN COMMISSIONED.—The following appointments in the Officers' Reserve Corps have been announced:

Captain, W. M. Tyler, Lexington, Medical Reserve; first lieutenant, Medical Reserve, W. E. Sedgwick, Palmer; first lieutenant, N.A., F. H. Judge, Boston; and first lieutenant, Q.M.C., E. H. Whittaker, Worcester.

DR. CHASE COMMISSIONED CAPTAIN.—Dr. Gilman L. Chase, of Clinton, has been commissioned as Captain in the Medical Officers' Reserve Corps, and now awaits assignment. Dr.

Chase is a son of Dr. A. L. Chase of the State Board of Registry in Medicine. He was born in Randolph, and was educated at Thayer Academy, Harvard College, and Harvard Medical School. He served at the Worcester City Hospital, and then went to Clinton about twelve years ago, where he has been town physician and on the staff of the Clinton Hospital. He is a Fellow of the American Association of Surgeons.

PROMOTION FOR DR. MEDALIA.—Dr. Leon S. Medalia, of Boston, who has been stationed, since August, 1917, as Chief of Laboratory, Base Hospital, Camp MacArthur, Waco, Texas, has been promoted to the rank of Major, Medical Reserve Corps, U. S. Army.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending June 29, the number of deaths reported was 207, against 242 last year, with a rate of 13.77, against 16.34 last year. There were 27 deaths under one year of age, against 37 last year.

The number of cases of principal reportable diseases were: diphtheria, 53; scarlet fever, 20; measles, 140; whooping cough, 52; typhoid fever, 3; tuberculosis, 88.

Included in the above were the following cases of non-residents: diphtheria, 14; scarlet fever, 2; whooping cough, 2; tuberculosis, 7.

Total deaths from these diseases were: diphtheria, 1; measles, 1; whooping cough, 4; tuberculosis, 28.

Included in the above were the following non-residents: tuberculosis, 1.

MASSACHUSETTS STATE DEPARTMENT OF HEALTH APPOINTMENTS.—Dr. Merrill E. Champion, State District Health Officer for the Eastern District, has been appointed Director of the Division of Hygiene, State Department of Health.

At the request of the Commissioner of Health, Captain Alec N. Thomson, Medical Reserve Corps of the Section for Combating Venereal Diseases, Office of the Surgeon-General, War Department, has been detailed to the State Department of Health for a period of three months. Captain Thomson has had a wide experience in establishing and conducting venereal clinic activities in the Army, and be-

fore he entered the Service was Director of the Venereal Clinic at the Brooklyn (New York) Dispensary. In the position of Temporary Chief of the Sub-division of Venereal Diseases he will be occupied with the details of the establishment and operation of the State Approved Venereal Disease Clinics.

In this connection it is also announced that Dr. Mary A. Lakeman of Salem has been appointed Epidemiologist in the Subdivision of Venereal Diseases. Dr. Lakeman's principal activities will be the organizing and coördinating of follow-up systems in the State Approved Venereal Disease Clinics.

DORCHESTER PHYSICIANS' WIVES ASSOCIATION.—There will be a meeting in the near future, under the auspices of the Dorchester Physicians' Wives Association, for the purpose of discussing the further enrollment of physicians in the service of the Army and Navy. The time and place of this meeting are now being planned.

The Association is making an appeal to the wives of the physicians of Greater Boston in order to assist the Massachusetts State Committee of the Council of National Defense, Medical Section, in its work of bringing home to the doctors their duty and their great opportunity in the present National Emergency.

For the sacrifices which doctors are asked to make in entering the service, the compensations, financial and other, which will accrue to them, will, at this meeting, be more fully pointed out.

Many doctors who feel it is impossible for them to accept commissions, would, if they understood the situation, feel that they could not afford to stay at home.

BETH ISRAEL HOSPITAL.—The directors of the Beth Israel Hospital have purchased a house adjacent to hospital grounds, for the establishment of an up-to-date out-patient department. A medical staff has already been organized, and it is expected that by the middle of August the building will be thrown open to the service of the community.

The directors, at a special meeting, have passed resolutions offering to the Government of the United States, ten beds for the treatment of wounded sailors and soldiers returning to the City, and if the Government would pro-

vide tentage, to offer all the grounds so as to accommodate at least 100 patients.

DR. EDSALL NAMED DEAN OF HARVARD MEDICAL SCHOOL.—Dr. David Linn Edsall will succeed Dr. Edward Hickling Bradford as dean of the Harvard Medical School. Dr. Edsall was born in Hamburg, N. J. He received the degree of A.B. from Princeton in 1890 and a medical degree from the University of Pennsylvania in 1893. After several years of practice and research work, he joined the University of Pennsylvania medical staff, where he served until 1911, both as a professor of therapeutics and pharmacology, as well as medicine. He came to Harvard in 1912 as Jackson professor of clinical medicine, having spent the preceding term at Washington University, St. Louis.

Dr. Edsall is chief of the medical service of the Massachusetts General Hospital, and has been active in many public health matters in this State, being a member of the Public Health Council. Since the outbreak of the war he has served with the following committees: State and Boston branches of the Medical Committee of the Council of National Defense, Executive Committee of the Committee on Medicine, Hygiene and Sanitation of Boston Public Safety Committee, Committee on Public Health of the National Food Administration and Advisory Committee of the Surgeon-General's Office on Vocational Training of Disabled Soldiers. He is also active in organizing the new work in industrial hygiene, which has recently been undertaken by the medical school.

WORCESTER MEMORIAL HOSPITAL TRAINING SCHOOL.—Commencement exercises at Memorial Hospital Training School, Worcester, were held on June 28. In many cases the graduation of the nurses corresponded to the completion of courses in military training schools, and a number of the graduates have planned to enter army work at once.

Major Homer Gage of Camp Devens, head surgeon at the Hospital at the time he entered the Medical Reserve Corps, addressed the graduates.

ST. ELIZABETH'S HOSPITAL.—At the graduation exercises of the Nurses' Training School of St. Elizabeth's Hospital, Brighton, thirty

young women received their diplomas. Five of them have already entered service.

The exercises were presided over by Dr. John R. Slattery, superintendent of the hospital. Rt. Rev. Mgr. John B. Peterson, president of St. John's Seminary, addressed the graduates, representing Cardinal O'Connell.

GIFT FOR CITY HOSPITAL.—By the will of the late A. Shuman, the city of Boston is given \$100,000 to erect on land on Dorchester Avenue a building for patients convalescing from acute diseases following treatment in the City Hospital, except those convalescing from alcoholism. The building is to be known as the "A. Shuman Memorial Building for Convalescent Men," and in a certain contingency may be erected in West Roxbury.

Mr. Shuman was for many years chairman of the board of trustees of the Boston City Hospital, and was a staunch friend of that institution and of medical education.

GODDARD HOSPITAL.—The annual report for the year 1917 has been published by Goddard Hospital, Brockton, Mass. This is a private hospital, established in 1902, for the treatment of obstetrical and surgical cases. During the past year, there have been treated 553 cases, of which 212 were obstetrical, 328 surgical, and 13 medical. On account of the limitation in the number of surgical beds, the surgical work has been confined almost wholly to operative surgery, especially of the abdominal type. The total mortality for the year was 1.4%. Plans have been made for the purchase of a new hospital building. The report contains detailed statistics concerning the obstetrical cases, the surgical operations, and the medical cases.

NEW HEALTH COMMISSIONER APPOINTED.—Dr. Francis X. Mahoney, Health Commissioner of Boston for the past eight years, has resigned, and will be succeeded on August 1 by Dr. William C. Woodward, Health Officer of the District of Columbia.

Dr. Woodward was born in Washington, Dec. 11, 1867. He graduated from Georgetown University in 1889, later taking a medical course at the University of Pennsylvania.

He has held his present position since 1894, and has taken part in the activities of various National health associations.

He has been president of the American Pub-

lie Health Association, of the Conference of State and Provincial Boards of Health of North America and of the American Association for the Study and Prevention of Infant Mortality. He is a director of the American Society for the Control of Cancer, a fellow of the American Medical Association, a member of the General Medical Board of the Council of National Defense, of the National Commission on Milk Standards, and of the National Tuberculosis Association.

INDUSTRIAL HEALTH CONFERENCE AT FITCHBURG.—A State-wide effort to develop means of making healthy and strong the internal life of the State in its industrial activities was inaugurated today at an industrial health conference held here under the auspices of the State Board of Labor and Industries with the co-operation of the Massachusetts Medical Society.

Physicians, business men, labor leaders and social workers participated in discussions of industrial health work and the movement to eliminate as many as possible of the hazards of industry.

An address on "The Duties of the Physician in the Prevention of Industrial Diseases" was made by Dr. Harry Linenthal of Brookline, and other speakers included Dr. Alfred H. Quessy of the State Board of Labor and Industries, and Dr. Thomas F. Harrington, Deputy Commissioner of Labor.

APPOINTMENTS AT HARVARD.—Among the appointments recently announced at Harvard, several Medical School promotions were made known:

Dr. Paul Thorndike of the Boston City Hospital was advanced to clinical professor of genito-urinary surgery, to take effect in September.

Dr. George R. Minot of the Massachusetts General Hospital and Dr. Isaac C. Walker of the Peter Bent Brigham Hospital were advanced to assistant professorships of medicine for the duration of the war.

Dr. Cyrus H. Fiske, assistant professor of biological chemistry at Western Reserve University, Cleveland, has accepted a similar place at Harvard, from whose medical school he was graduated four years ago.

BOSTON HEALTH DEPARTMENT.—The April issue of the bulletin of the Health Department of

Boston describes the work and plans of the Health Department. It reports that the general death rate has been slowly decreasing, and that the infant mortality rate fell last year below 100 per 1000 to 99.1. Excluding the deaths of children brought from outside the city, Boston's infant mortality stands at 79.7 per thousand.

In dealing with the tuberculosis problem, Boston has divided the responsibility between the Health Department and the Consumptives' Hospital Department. Not less than 8,000 cases of venereal diseases in a contagious stage have been found in the city. In order to increase public education, a "Health Unit" is maintained on Blossom Street, where talks are given regularly in different languages on various health topics. The Child Welfare Committee has undertaken to save 3094 children, Massachusetts' quota, during Children's Year. A report on measles, and suggestions concerning flies, summer diseases, the care of homes and yards, are offered.

The bulletin contains, also, a list of the courses offered for the summer of 1918 at the School of Public Health of Harvard University and the Massachusetts Institute of Technology. Statistics are given concerning pulmonary tuberculosis, mortality rate, and inspection of milk, food, and sanitary conditions. Deaths reported for the month of April have amounted to 1163, against 1102 in the corresponding period last year.

HARVARD TO OFFER COURSE IN TREATMENT OF OCCUPATIONAL DISEASES.—A course of training intended to meet the varying problems of occupational diseases and industrial health is proposed by the Harvard Medical School, in order to assist employers of labor in maintaining a health standard in their plants. Harvard authorities have taken counsel with a number of leading employers of labor in New England and received such encouragement that they have decided to open such a school in the fall.

Quite apart from the humanitarian aspect of the question, it is becoming recognized that good health makes for efficiency and contentment. Harvard authorities, in starting the school, have in mind the progressive corporation employing about 8000 persons. The organization will include, in part, six full-time physicians, two dentists, an oculist, and a full

corps of nurses. Three applications have been received recently at the school from corporations for doctors to take charge of health activities. The demand is increasing, and there is today no medical school in the country which offers an adequate course of training to meet it. At present, physicians holding these positions have to learn by experience how best to apply their general medical knowledge to the problems encountered in the treatment of industrial patients.

The plan will be financed by annual subscriptions from corporations and individual employers for five years, and it has been estimated that the moderate sum of \$25,000 a year will justify the undertaking. It is hoped that by the end of that period it will be possible to obtain permanent endowment.

The ultimate end in view is the development of a center to which any employer of labor, large or small, can apply for expert aid in the solution of any problem pertaining to industrial health. The response to the appeal has been such as to justify the belief that the full sum desired will be in hand within a reasonable time. Plans are now being made to begin systematic work October 1.

The following group have consented to act as an advisory committee of business men: Captain W. E. McKay of the Massachusetts Gas and New England Manufacturing Companies; S. Harold Greene, of Lockwood, Greene and Co.; and Frank J. Hale, of the Saco-Lowell shops.

BOSTON DISPENSARY.—The 121st annual report of the Boston Dispensary shows that it has rendered even larger service than ever before. Twenty-seven doctors, about one-third of the Medical Staff of the Dispensary, have entered the military, naval, or Red Cross service during 1917. The work of the Dispensary has been increased necessarily because of its co-operation with the State Department of Health and the Council of National Defense, in enlarging its clinics for venereal disease. The evening pay clinics have given noteworthy service to wage-earners, and have assisted in preserving their health and productivity. About 40,000 patients have been treated by the Boston Dispensary during 1917. Of these 15,000 were babies and children, among whom the Social Service Department labors to prevent as well as to cure disease.

"BOSTON UNIT" READY FOR SERVICE.—The military medical unit, officially known as Base Hospital 51, and popularly designated, "Boston Unit," has been mobilized at Camp Wheeler. It has for its officers chiefly men from Boston and vicinity, and it includes probably 100 nurses who are graduates of Boston schools. The staff was formed through the energy of Major Fred B. Lund, who served in Base Hospital 22, British Expeditionary Forces, in France during 1915. Lieut.-Col. Frederick A. Tucker, of Indianapolis, is in command as chief administrative officer. The officers of the Boston Unit are all graduates of the army medical training schools at Camp Greenleaf, Fort Riley, or Fort Benjamin Harrison, and several of them have been in active service in France. Among the officers included are:

Major A. Quackenboss; Captains L. S. Hapgood, J. A. McLean, G. W. Miller, N. R. Mason, F. W. Lester, Homer B. Smith, Lieutenants P. H. Leavitt, W. C. Hardy, A. W. Hubbard, M. R. Kendall, L. S. McQuade, A. T. Moulton, Donald Munro, L. G. Moore, William R. Morrison, R. S. Eustis, G. W. Papen, Roy S. Perkins, W. M. Pettingill, S. B. Ross, Eugene B. Cass; and two dental surgeons, Lieutenants John S. Kellogg and Gilbert H. Gauerke.

NURSES' TRAINING SCHOOL AT VASSAR.—America's first great training school for war nurses opened at Vassar College with an attendance slightly exceeding 500 young women graduates of colleges from all over the United States.

At the convocation which preceded the opening of the three months' training course, women from 43 States were present, representing 110 colleges.

Pres. Henry N. MacCracken of Vassar, presided at the opening ceremonies in the chapel. Among the speakers were Eliot Wadsworth and Mrs. John W. Blodgett, a trustee of Vassar.

The official designation of the camp is a school of science applied to trained nursing. Most of the graduates, after another year's hospital training, will be available for service with the American Expeditionary Forces.

NORFOLK STATE HOSPITAL.—The fourth annual report of the Norfolk State Hospital has

been submitted for the year 1917. The work of the out-patient department in dealing with inebriates has been considerably increased, and there are now twenty-eight out-patient offices maintained by the hospital. During the year, 1500 patients have been in actual residence at the hospital, and the term of the average patient has decreased from seven weeks in 1914, to four weeks in 1917. Because the hospital has a unique acquaintance with the nervous disorders which often underlie the addiction to alcohol, it is the hope of the staff that the facilities of the hospital may be placed at the disposal of the National Government for the care of cases of nervous shock which will be sent from the front. Statistical tables concerning patients are included in the report.

NEW ENGLAND NOTES.

DENTAL CONVENTION IN PORTLAND.—The annual convention of the Maine Dental Association was held on June 27. About one hundred and fifty persons attended. Papers were read by Dr. Norman B. Nesbit of Boston, Dr. Archer Jordan of Auburn, Dr. Percy R. Howe and Dr. Fred W. Allen of Boston. An address was made by Dr. Henry Gilman of Portland on dentistry and the war. Clinics were held during the day.

PAWTUCKET HEALTH REPORT.—The Board of Health of the City of Pawtucket has submitted an annual report for the year 1917. During the past year there have been reported 275 cases of contagious diseases, 188 have been quarantined and fumigated, 1283 diphtheria cultures have been taken by inspectors, and 2808 nuisances have been investigated and inspected. It has been deemed advisable to placard both measles and typhoid fever. The city is in great need of a hospital for contagious diseases.

In regard to the inspection of beef, Pawtucket should have some support from the State, inasmuch as over 90% of the dressed meats are sold in Providence and the neighboring cities. The city needs, also, a full-time milk inspector, who is competent to do the bacteriological work for the health department.

The Massachusetts Medical Society.

PROCEEDINGS OF THE SOCIETY.

First Day, June 18, 1918.

CLINICS and demonstrations were held during the morning at the principal hospitals of Boston. All of the exercises of the anniversary were held at the Boston Medical Library, 8 The Fenway, Boston, beginning with the annual meeting of the Supervisors, June 18, at 11.30 a.m., followed by the annual meeting of the Council at noon, 116 Councilors being present. Meetings of the Sections of Medicine, Surgery, Tuberculosis and Hospital Administration were held in the different halls of the building. A detailed and corrected program of the meetings and the officers of the Sections is to be found in the BOSTON MEDICAL AND SURGICAL JOURNAL for June 13, 1918, Vol. clxxviii, pages 833-835.

The following officers of the sections were elected for the ensuing year by the sections:

Section of Medicine: *Chairman*, George A. Bancroft, Natick; *Secretary*, William David Smith, Boston.

Section of Surgery: *Chairman*, Howard A. Lothrop, Boston; *Secretary*, Hilbert F. Day, Boston.

Section of Tuberculosis: *Chairman*, Henry D. Chadwick, Westfield; *Secretary*, E. O. Otis, Boston.

Section of Hospital Administration: *Chairman*, George G. Sears, Boston; *Secretary*, Channing C. Simmons, Boston.

The Shattuck Lecture was delivered in the evening by Dr. E. E. Southard of Boston on the topic: "Shell Shock and After."

Following the lecture, refreshments were served in the supper-room.

Second Day, June 19, 1918.

The Society met at the Boston Medical Library for the exercises of the one hundred and thirty-seventh anniversary. The President, Dr. Samuel B. Woodward of Worcester, was in the chair and three hundred and eighty Fellows and guests were present during the morning. The minutes of the last meeting were read and accepted. The Secretary announced that during the past year the Society had lost by death 58 Fellows, by resignation 10, by deprivation of the privileges of fellowship 5, total loss 73. The Society had gained 96 Fellows as follows: restoration by the Council 7, new Fellows 89, total net gain 23, making the membership of the Society, June 19, 1918, 3689.

The President introduced Dr. Arthur T. Jones of Providence, who brought the greetings from the Rhode Island Medical Society.

The readers of the papers on the printed program being unable to be present, Major

Henry D. Jump, M.R.C., of Philadelphia, of the Council of National Defense, spoke to the meeting on the need of officers for the Medical Reserve Corps of the Army, and explained the present situation and the duties and the details of the training of officers for this Corps.

Colonel Franklin Martin of the Advisory Commission of the Council of National Defense addressed the meeting on the same topic, and he explained the provisions of the Volunteer Medical Service Corps.

There was patriotic singing by the audience, led by Dr. John B. Hawes, 2d.

At 11 o'clock the following distinguished British visitors arrived at the meeting and were greeted by *God Save the King*, sung by the audience: Sir James Mackenzie of the London Hospital, Sir William Arbuthnot Lane of Guy's Hospital, London, and Colonel Herbert A. Bruce, Consulting Surgeon of the British Armies in France. Each of the visitors addressed the meeting. Sir James Mackenzie recounted the experiences of the medical profession in England during the present war, and said that it had found itself not so well fitted for the work as it had thought. He said that at present they had a hospital where the cases of medical men who had broken down from overwork were studied, and that this aspect was an important one for the profession of both countries at the present time. Colonel Lane paid a tribute to the assistance which had been given to the British Army by American medical men and spoke of the great progress which had been made in plastic surgery to restore the features of the men who had had their faces destroyed by the modern methods of warfare. He closed by reminding his hearers that Americans said that they "can lick creation" and now they should not eat their words. Colonel Bruce spoke of the progress made in the art of transfusion and said that blood now could be collected and preserved for as long a time as a month, and that it was extremely useful in repairing the loss due to hemorrhage. He paid a tribute to the part that the American surgeons had played in the war, and urged the need of further enlistments.

At 12.10 the Annual Oration was delivered by Dr. Myles Standish, of Boston, on the subject: "Socialization of the Practice of Medicine."

At the close of the discourse the thanks of the Society were conveyed to the orator by vote of the meeting.

In the afternoon the Section of Hospital Administration and the combined sections of Medicine and Surgery met at the Library and listened to the papers set forth in the program.

The Annual Dinner having been omitted by vote of the Council, on account of war conditions, the Society adjourned *sine die*.

WALTER L. BURRAGE,

Secretary.

ADMISSIONS REPORTED FROM JUNE 13, 1917, TO

Year of Admission.	Name.	Residence.	Medical College.
1917	Armstrong, Donald Budd,	Frammingham	17
1917	Barnes, Louis Dwight,	Lanesborough	7
1917	Bearse, Carl,	Boston	12
1917	Bristol, Delos Jndson, Jr.,	Boston	2
1917	Brown, Henry Seabury,	Boston	12
1917	Bruce, Jacob Baldwin,	Boston	11
1917	Bryan, William Alvin,	Danvers (Hathorne)	3
1917	Budreski, Alphonse Frank,	Brighton	12
1918	Casey, Chester Arthur,	Lawrence	12
1917	Chaput, Lucien Romeo,	Haverhill	32
1918	Churchill, Anna Quincy,	Dorchester	12
1918	Cohen, Samuel Adams,	Roxbury	12
1917	Cosgrove, Joseph Justin,	Westfield	12
1917	Curran, George Lally,	North Adams	30
1917	Currie, Inez Margaret,	Worcester	12
1918	Davidson, Alfred,	Chelsea	12
1917	Dexter, Roderick Besnard,	Dorchester	26
1917	Driscoll, DeCoursey John,	Lynn	8
1918	Emard, George Adelbert,	Mansfield	12
1918	Feldman, Aaron,	Boston	12
1917	Frankel, David Israel,	Boston	10
1917	Gaetani, Arthur Leonard,	Dorchester	12
1917	Garbelnick, David Abraham,	Boston	10
1917	Garrett, Frank Steele,	Chelsea	8
1917	Garrick, Nathan Henry,	Cambridge	10
1918	Générénx, Edmond Alfred,	Worcester	11
1917	Gibby, Harold James,	Worcester	19
1917	Gordon, Samuel Finley,	Mattapan	24
1917	Green, Milo Chester,	Boston	10
1918	Guralnick, Rubin,	East Boston	12
1918	Hart, Francis Denbroeder,	Worcester	12
1918	Hayden, John Joseph,	Worcester	8
1917	Haywood, Ralph Winson,	Salem	5
1917	Healy, William,	Boston	18
1917	Heininger, Arthur Gustav,	Gardner	22
1917	Herbert, Edward,	Fall River	17
1918	Herman, Edwards Woodbridge,	Boston	11
1917	Hodgdon, Frank Wellington, Jr.,	Boston	11
1917	Howard, Harvey James,	Boston	19
1917	Hughes, George Frederick,	Somerville	12
1918	Hughes, John,	Holyoke	22
1918	Hunt, Frank Hamilton,	Mattapan	43
1918	Hurley, William Cyril Rowe,	Quincy	12
1917	Hyman, Clarence Henry,	Boston	11
1918	Jones, Fred Durgin,	Springfield	12
1918	LaRochelle, Arthur Henry,	Springfield	38
1917	Leavitt, Mary Augusta,	Medford	10
1917	Leland, Harold Leander,	Boston	10
1918	Lichtenthæler, Marguerite Emile,	W't's'ty, H's's	10
1917	Loewe, Walter Ralph,	Dorchester	12
1918	Lowry, Franklin Patterson,	Newton	11
1917	Kable, Josephine Downie,	Wrentham	12
1918	Keown, James Archibald,	Lynn	11
1918	Klein, Armin,	Chelsea	11
1917	McCarthy, Charles Daniel, Jr.,	Malden	12
1917	McCarty, Edward Michael,	Somerville	20
1917	McClintock, Elsie,	Gardner	12
1917	Medalia, David Bernard,	Boston	12
1918	Merritt, Robert Elmer,	Wollaston	12
1917	Meyers, Hyman Bernard,	Chelsea	12
1918	Mintz, Samuel Charles,	Boston	12
1917	Morrison, Lawrie Byron,	Boston	22
1917	New, Way Sung,	Boston	11
1917	Papen, George William,	Boston	12
1918	Parker, Charles Clinton, Jr.,	Roxbury	12
1917	Record, Harold Roland,	East Braintree	12
1917	Rice, Florence Frances,	Cambridge	12
1917	Ripley, Harold William,	Boston	10
1918	Robbins, Edmund Henry,	Somerville	14
1917	Rockwell, John Arnold, Jr.,	Cambridge	10
1917	Ross, Elizabeth,	Cambridge	10
1917	Rowland, Edward Gould,	Natick	8
1918	Rowley, Philip William,	Gloucester	12
1918	Sannella, Salvatore,	Springfield	12
1918	Saunders, Thomas Henry,	Webster	44
1918	Savage, Ross Eliot,	Tisbury	5
1918	Schön, Edward,	Lynn	20
1918	Segal-Roitman, Jennie,	East Boston	20

Year of Admission.	Name.	Residence.	Medical College.
1918	Shaw, Thomas Wignall, Lynn	.....	12
1917	Simon, Harold Francis, Winchester	.....	10
1917	Sisson, Warren Richards, Boston	.....	6
1917	Smith, Lillian Richardson, Worcester	.....	12
1918	Sullivan, Daniel Thomas, Mansfield	.....	1
1917	Sundelöf, Ester Mathilda Eleonora, Roxbury	.....	12
1918	Walker, Waldo Webster, West Somerville	.....	34
1917	Watt, George, Worcester	.....	11
1917	Wiley, Walter Brown, Jr., Brighton	.....	12
1917	Williams, Frederick Russell, Worcester	.....	16
1918	Woodward, Le Roy Albert, Worcester	.....	12
Total=89.			

KEY TO MEDICAL COLLEGES.

- 1 Bellevue Hospital Medical College.
- 2 Yale University, Medical Department.
- 3 George Washington University, Dept. of Medicine.
- 5 Bowdoin Medical School.
- 6 Johns Hopkins University, Medical Department.
- 7 College of Physicians and Surgeons, Baltimore, Md.
- 8 Baltimore Medical College.
- 10 Boston University School of Medicine.
- 11 Medical School of Harvard University.
- 12 Tufts College Medical School.
- 14 Dartmouth Medical School.
- 16 Long Island College Hospital.
- 17 Columbia University, College of Physicians and Surgeons.
- 19 University of Pennsylvania, Dept. of Medicine.
- 20 College of Physicians and Surgeons, Boston.
- 22 University of Vermont, College of Medicine.
- 24 Medico-Chirurgical College of Philadelphia.
- 26 McGill University, Medical Faculty.
- 30 New York University and Bellevue Hospital Medical College.
- 32 University of Maryland, School of Medicine.
- 34 State University of Iowa, College of Homeopathic Medicine.
- 38 Jefferson Medical College.
- 43 University of Virginia, Department of Medicine.
- 44 Maryland Medical College.

DEATHS REPORTED FROM JUNE 13, 1917, TO JUNE 19, 1918.

Admitted.	Name.	Place of Death.	Date of Death.	Age.
1877	Adams, Edwin Boardman	Springfield	Dec. 21, 1917	66
1873	Adams, John Quincy	Amesbury	Oct. 18, 1917	67
1873	Bemis, Charles Albert	West Medway	Sept. 13, 1917	69
1861	Blake, John George	Boston	March 4, 1918	80
1867	†Bowen, Seabury Warren	Fall River	May 2, 1918	77
1883	Bradley, Charles Seymour	Roxbury	Jan. 10, 1918	64
1905	Brown, Edward Manning	Springfield	Oct. 22, 1917	45
1912	Burns, Newell Bly	North Reading	Oct. 27, 1917	35
1868	†Carleton, Charles Greenleaf	Lawrence	Dec. 17, 1917	74
1895	Chicoine, Isadore Hermanigilde	Lynn	Aug. 8, 1917	52
1903	Clapp, Arthur Martin	Springfield	Oct. 31, 1917	41
1878	†Copeland, Horatio Franklin	Whitman	Feb. 8, 1918	75
1905	Coté, Honoré Joseph	Boston	Nov. 7, 1917	56
1905	Craig, William Gibson	Springfield	Nov. 15, 1917	49
1866	Crocker, John Myrick	Cambridge	Oct. 6, 1917	72
1896	Cronin, Henry William	Worcester	Aug. 20, 1917	54
1873	Currie, John Zebulon	Arlington	Nov. 10, 1917	70
1887	Cutts, Harry Madison	Brookline	Feb. 21, 1918	59
1893	Donnelly, John Bernard	West Gardner	Aug. 2, 1917	50
1865	†Driver, Stephen William	Cambridge	May 21, 1918	85
1874	Dunn, William Aloysius	New York, N. Y.	March 28, 1918	65
1879	Dwight, James	Mattapoisett	July 13, 1917	65
1893	Ermentrout, Sallie Justina	Eldridge, Col.	Nov. 14, 1917	60
1874	Farr, Edwin Lawson	Brookline	Jan. 24, 1918	72
1886	†Gibbs, Linnaeus Victor	Huntington	Oct. 17, 1917	76
1869	†Gifford, Benjamin Dodds	Chatham	May 16, 1918	72
1898	Goddard, Henry Edward	Brookton	May 12, 1918	65
1871	Gordon, John Alexander	Quincy	Jan. 24, 1918	74
1906	Hatch, Royal	Wellesley	Dec. 30, 1917	39
1862	†Holbrook, Silas Pinckney	Farmansville	Oct. 2, 1917	79
1908	Howe, George Plummer	France	Sept. 28, 1917	39
1908	Jones, James Ambrose	Lynn	July 4, 1917	52
1883	Kenyon, Henry Jesse	Worcester	April 5, 1918	66
1895	†Kingsbury, Albert Dexter	Needham	Dec. 26, 1917	75
1876	†Lathrop, William Henry	Lowell	Dec. 22, 1917	77
1897	Martin, John Macleod	Roxbury	Feb. 19, 1918	62
1889	Mayberry, Edwin Nelson	South Weymouth	July 14, 1917	60
1904	McCormick, Thomas Joseph Henry	Roxbury	Oct. 10, 1917	42
1886	McIntyre, David	Dorchester	Sept. 2, 1917	59
1871	†Nickerson, William Jabez	New Bedford	March 6, 1918	73
1917	Osman, Charles Franklin	Dorchester	March 9, 1918	62
1867	†Parker, Moses Greeley	Lowell	Oct. 1, 1917	74
1898	Plummer, Frank Wentworth	Malden	Dec. 15, 1917	47
1865	†Presbrey, Silas Dean	Taunton	Oct. 23, 1917	79
1884	Sawin, Charles Dexter	Boston	Feb. 8, 1918	60
1882	Scribner, Ernest Varian	Worcester	June 14, 1918	63
1900	Sears, Stephen Hull	Yarmouthport	Nov. 25, 1917	63
1881	Sidney, Austin Wilbur	Fitchburg	June 25, 1917	93
1863	†Skinner, Edward Manning	Chestnut Hill	Feb. 8, 1918	82
1892	Stedman, Joseph Cyrus	Baltimore, Md.	June 14, 1918	51
1883	Stevens, William Caldwell	Worcester	Oct. 17, 1917	62
1872	†Torrey, Samuel William	Beverly	Jan. 1, 1918	74
1866	†Walker, Augustus Chapman	Cambridge	April 5, 1918	84
1908	Watson, John William	Brooklyn, N. Y.	June 23, 1917	46
1908	Weaver, Harry Vernon	New Bedford	Sept. 21, 1917	47
1900	Wells, Abner Toothaker	Waukesha, Wis.	Aug. 16, 1917	44
1884	Whitcombe, Charles Reed	Rosindale	March 9, 1918	64
1874	Williams, Charles Herbert	Cambridge	June 9, 1917	68

Total, 58 deaths.

† Retired Fellow.

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Chosen by the Council, June 18, 1918.

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G. H. A. Leahey	Middlesex North
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NOTE.—The initials M. N. C., following the name of a councillor, indicate that he is a member of the Nominating Committee. V.P. indicates that a member is a councillor by virtue of his office of president of a district society, and so vice-president of the general society. C. indicates that he is chairman of a Standing Committee. Ex-P. indicates ex-president.

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Godfrey Ryder, Malden.
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A. N. Broughton, Jamaica Plain.
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G. W. Clement, Roxbury.
Samuel Crowell, Dorchester.
H. W. Dana, Brookline.
W. C. Emery, Dorchester.
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C. B. Faunce, Jamaica Plain.
C. S. Francis, Brookline.
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Bradford Kent, Dorchester.
W. A. Lane, Milton.
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C. S. Adams, Wollaston.
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H. B. Baker, Taunton.
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R. C. Hurd, Newburyport.
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ESSEX SOUTH,

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Loring Grimes, Swampscott.
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E. G. Best, Greenfield.
C. C. Messer, Turners Falls.
C. L. Upton, Shelburne Falls.
G. P. Twitchell, Greenfield.

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G. L. Woods, Springfield.
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S. A. Clark, Northampton.
N. C. Haskell, Amherst.
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C. A. Byrne, Hatfield.

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F. O. West, Woburn.
Ralph Putnam, Winchester.

MIDDLESEX NORTH,

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J. P. McAdams, Lowell.
E. J. Clark, Lowell.
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W. J. Walton, Dorchester.
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NORFOLK SOUTH,

G. H. Ryder, Supervisor, Quincy.
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C. J. Lynch, Quincy.
C. A. Sullivan, South Braintree.
C. H. Gould, Braintree.

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C. M. Smith, Boston.
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J. J. Cummings, Worcester.
Alexander McNeish, Leicester.
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W. F. Sawyer, Fitchburg.
G. P. Norton, Fitchburg.
H. R. Nye, Leominster.
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1918-1919.

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1918-1919.

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Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MAY, 1918.

General Prevalence. During the month of May there were reported 14,899 cases of communicable disease, an increase of 3490 over the corresponding month for 1917, with a case rate per 100,000 population of 380 for May, 1918, as compared with 296.5 for May, 1917.

The increase was due in a large measure to the increased reporting of cases of measles and whooping cough.

Epidemic Cerebrospinal Meningitis occurred less frequently during May than the previous month, the number of cases for May being 35, as compared with 67 for the preceding month.

These cases occurred chiefly in the more densely populated cities and towns, and the source of infection was, for the most part, unknown.

The desirability of lumbar puncture for diagnosis and the intraspinal injection of anti-meningitis serum for all suitable cases is, of course, apparent.

Lobar Pneumonia was reported in 563 cases during the month of May.

Smallpox. There were but 3 cases of smallpox reported during the month. Two cases occurred in Boston, both probably infected from an unknown person in a lodging house. The third case occurred in Lynn, for which no source of infection could be found.

Scarlet Fever. A small outbreak occurred in the Western part of the State with a total of 46 cases. With commendable promptness, efficient isolation and quarantine was established, with the result that the outbreak was stopped in its incipency.

In one town reporting 17 cases, the source was probably due to infected milk. A boy employed capping milk bottles worked with sore throat, headache and chills, and within the next week 16 cases occurred in families using milk from this source. The source of the boy's infection was unknown.

Measles. The total number of cases reported for the month reaches 6334. This figure speaks eloquently of the lack of efficient isolation of active cases, and the seeming neglect of contacts, who in many instances have no supervision until they come down with the infection. It might be suggested that a more careful supervision of all known contacts and the careful treatment of those affected be carried out.

Whooping Cough. As compared with the corresponding month of 1917, we find an increase of 646 cases, the total for May, 1917, being 355 and for May, 1918, 1001. Part of this increase may be accounted for by the better reporting by physicians, but that the incidence has increased there can be no doubt.

Veneral Diseases. Reports of venereal diseases begin to show the wide prevalence of these conditions throughout the State. With our reports admittedly incomplete, there have been reported 2651 cases of gonorrhea and 1141 cases of syphilis since February 1, 1918.

With these facts before us we feel that there is sufficient evidence to prove to the most skeptical person that the prevalence of gonorrhea

and syphilis is sufficient to warrant a strenuous endeavor to combat these diseases and the conditions which favor their occurrence.

RARE DISEASES.

Anterior Poliomyelitis was reported from Barre, 1; Boston, 1; Cambridge, 1; Framingham, 2; and Revere, 1; total, 6.

Dog Bite was reported from Barre, 3; and Boston, 3; total, 6.

Epidemic Cerebrospinal Meningitis was reported from Blackstone, 1; Boston, 8; Braintree, 1; Cambridge, 2; Camp Devens, 11; Fall River, 2; Fitchburg, 1; Lowell, 2; Lynn, 1; New Bedford, 1; Newburyport, 1; Newton, 1; Northbridge, 1; Pittsfield, 1; Quincy, 1; Revere, 1; Somerville, 1; Taunton, 1; Watertown, 1; West Springfield, 1; Winchendon, 1; and Worcester, 3; total, 35.

Malaria was reported from Boston, 2; and Lynn, 2; total, 4.

Pellagra was reported from Boston, 1; Chelsea, 1; and Foxboro, 1; total, 3.

Septic Sore Throat was reported from Boston, 5; Cambridge, 1; Chelsea, 1; Everett, 1; Framingham, 1; and Medford, 1; total, 10.

Smallpox was reported from Boston, 2; and Lynn, 1; total, 3.

Tetanus was reported from Lawrence, 1; Springfield, 1; and Taunton, 1; total, 3.

Trachoma was reported from Boston, 5; Cambridge, 1; Concord, 1; Lowell, 1; and Worcester, 1; total, 9.

Typhus Fever was reported from Chelsea, 1.

Correspondence.

THE PRACTICE OF MEDICINE IN AN ARMY BASE HOSPITAL.

Mr. Editor:—

I suppose any workman gets satisfaction out of the chance to do the best work he is capable of. I have felt, in my medical work here in France, as part of the group of physicians and surgeons associated together at Base Hospital No. 6, that the army organization made it possible for me to do better work and to give better service than has ever been possible for me before.

Modern diagnosis and treatment is far too complicated for any single man to know the whole of. When it is well done, when people's illnesses are searched to the bottom and treated with success, it is because a number of men, representing different specialties in medicine, work as a team, each contributing his part to the study of the patient's troubles and to the formulation of a plan of treatment. In civil practice at home this is seldom possible. In the first place, the patient cannot afford half a dozen high-priced specialists. In the second place, they cannot easily be brought together at frequent intervals to talk over the daily and hourly changes in the patient's condition.

But in a base hospital, like No. 6, where we have specialists in the diseases of the eye, of the ear, nose and throat, of the nervous system, of the skin, specialists in germ diseases, in troubles of the bones and joints, and in all the different branches of medicine and surgery, we can give our patients the benefit, not merely of one man's knowledge and skill, but of the combined brains and special experience of the whole group. One of the patients in our hospital recently needed to be seen by the specialists for diseases of the eye, diseases of the nose and throat, and diseases of the nervous system, by a specialist in brain surgery, and by an internist or general practitioner. This group, meeting as they did every day at meals, could talk over the changes in the patient's condition, the variations in his temperature, in his pain and in all his physical functions, and make plans for whatever surgical interference or other treatment was necessary, at just the right moment and without delay.

At home, the smooth working of such team work would have been interfered with by the private practice of each individual member of the group. They could not have met each other frequently. They could not have discussed the patient's troubles so frequently and freely.

It is a great relief to be free altogether from money considerations and professional rivalries, to be working wholly for the patient and not against each other, to have no thought of competition or of anything except doing a good job. Moreover, by constant association, a group of physicians learns to work together like the members of a football team, and to fit themselves quickly and skillfully each to each.

To practice medicine with a fully equipped laboratory, a first rate x-ray plant, a modern surgical operating theatre and equipment all ready at hand, where one can run in at any moment and get whatever is necessary; to have all our medical resources under one roof, and at one's fingers' ends, as it were, to have no distracting or conflicting claims, makes it possible for us to give a grade of medical and surgical service far higher than is possible in civil life. Being wholly new to military work, this has been a great and most delightful surprise to me. I am free now to give the best that I can. I have never been so before.

Another great advantage of our work here is in having a continuous force of well trained graduate nurses. In private practice at home one changes nurses very frequently and as a matter of necessity. In the hospital work of civil life one has to use pupil nurses with only incomplete training. But here, in the army, with a full staff of picked graduate nurses working together with each other, and with the same physicians continuously, the team work of which I just spoke in relation to the combination of physicians with each other, holds good also for the relation of doctors and nurses in their efforts to benefit the patient.

If the civil population at home could know what advantages the soldiers have here over anything that can be obtained in the way of medical treatment in civil life, they certainly would want their hospitals organized upon the military plan at home.

RICHARD C. CABOT, *Major, M.R.C.*

A PLEA FOR THE GENERAL ADOPTION OF A PLAN OF HOSPITAL ORGANIZATION THAT WILL RELEASE COMPETENT PHYSICIANS FOR ARMY SERVICE.

New York, June 27, 1918.

Mr. Editor:—

The United States is now in the war. The nation is getting its stride. The changes and readjustments that are required for the effective conduct of the war are difficult, and are becoming more difficult every day, but they are never impossible. Of necessity, the business of the country has been reorganized; the same imperious necessity calls for the reorganization of the civil hospitals.

Up to the present time, the enrollment of medical men has kept pace with the Army's growth. But a million Americans have now taken their place in the fighting line; ships are available for the rapid transportation of a second million; a third million is streaming into the training camps, and more doctors are needed. The hospitals of the country must help to furnish them—they can if they will.

By undertaking to retain in its service only the actual number of men required to care for its patients, the hospitals can at once release a large number of physicians for Army service. *Every hospital that has not already done so should at once place its staff on a war footing by abolishing the rotating service.*

What is the rotating service? It is a plan of organization which requires or permits two, three, four, or even six men, each serving six, four, three, or perhaps only two months annually, to hold down one man's job. There may be reasons of educational policy which justify a rotating service in ordinary times; today any such plan is contrary to the national interest and is self-condemned. In this crisis, no plan of organization is admissible which does not release every competent physician who can be spared for military duty. No man should be permitted to excuse himself from entering the Medical Reserve Corps on the plea that a hospital needs him unless his presence in that hospital is indispensable—not two, three or four months in the year, but all year.

For the period of the war the rotating service must go. The continuous plan is the only patriotic plan of hospital organization at this time. It is the duty of hospital authorities to adopt this plan now, and to make it plain to the men who are thus released from hospital service for the period of the war, that the purpose of their release is to make it easier for them to decide where the path of duty lies.

S. S. GOLDWATER, M.D.,

Chairman, War Service Committee,
American Hospital Association.

AN AUTHOR'S CORRECTIONS.

Camp Greenleaf, Chickamangua Park, Ga.,
June 20, 1918.

Mr. Editor:—

My attention has been called by the Surgeon-General's Office to several inaccurate and misleading statements made in the paper entitled "Roentgenology in the American Army," published in the JOURNAL of May 30, 1918, and it is my wish that the following corrections be published:

The statement that "Little preparation had been made for the use of x-ray in the Army" is inaccurate, as x-ray has been widely used throughout the Army.

Reference to a meeting of a committee called by the Council of National Defense is inaccurate, as the meeting was called by the then president of the American Roentgen Ray Society, after a conference with the Surgeon-General's Office.

The portable unit was developed by Dr. W. A. Coolidge in the early spring of 1917. The bedside unit was developed by Major J. S. Shearer, S.C., N.A.

Development of other apparatus was not made by the committee referred to above, but by officers appointed for that particular purpose by the Surgeon-General.

The stereo-fluoroscope is not "made use of in the wards," but is, as yet, not fully developed, as stated in another paragraph of the paper. It cannot be used with our present bedside unit.

The paragraph describing the "various medical components of a fighting force" is not entirely accurate when applied to the present methods of warfare.

Great credit is due the Surgeon-General's Office for the present efficiency of the x-ray service of the Army.

FRANK E. WHEATLEY, *First Lieut., M.R.C., U.S.A.*

THE CRIPPLED BEGGAR.

New York, June 26, 1918.

Mr. Editor:—

The public has too often confused the idea of a cripple with that of a beggar. The resulting reaction has done a great injury to the cause of the self-respecting disabled man in regarding him as a subject for charity but not for trade training and employment.

To be sure, there is historical precedent for this attitude, for in past decades and centuries various peoples have condemned the cripple to the status of roadside beggar or at best employed him as jester or court fool. And in our experience there is justification in the view, because we have seen many cripples at street corners, making public exhibition of their deformity or amputation and soliciting alms of the passers-by. The number of these beggars is small in comparison to the great body of physically handicapped men who are usefully employed, but the few have vigorously advertised, have made a considerable impression on the susceptibilities of the community, and have reaped a profitable harvest. A bank teller reported recently the case of a crippled street beggar who deposited in a savings account, after paying his living expenses, forty dollars weekly.

That the beggar cripple has been permitted to ply his trade is a great injustice to the disabled men of character and independence. The practice should have been stopped in the past; it is absolutely necessary that it be prohibited in the future. For with the expectation of our soldiers who will return disabled from the front, the public should have no excuse for associating their prospective career with that of the mendicant. On the contrary, every influence should be brought to bear upon the public to show that physical disability is an obstacle, but easily surmountable with character and ambition; and that the cripple may be made into a useful and productive citizen.

In several cities there have been inaugurated campaigns to drive the crippled beggar from the streets and give him the alternative of productive employment or a stay in jail. Such efforts should be imitated in every community and persevered in until the unfortunate conception of the cripple shall exist no more.

Such activity may well be undertaken as a first step in preparation for the return of our disabled soldiers and sailors.

DOUGLAS C. McMURTRIE, *Director,*
Red Cross Institute for
Crippled and Disabled Men.

SOCIETY NOTICE.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York City, on Oct. 21. A symposium will be presented on the "Modern Treatment of Infected Wounds."

DR. J. S. HILL, *President,*
Bellows Falls, Vt.,
GEO. CHAFFEE, *Cor. Sec.,*
Little Meadows, Pa.

MARRIAGE.

DR. LEON C. HAVENS, of Colorado Springs, has married Miss Mildred Kenniston, daughter of Mr. and Mrs. Fred A. Kenniston, of 2322 Massachusetts Avenue, North Cambridge. Dr. Havens received the degrees of A.B. and A.M. from Colorado College, and was graduated from the Harvard Medical School last spring. The bride was graduated from Cambridge Latin School in 1911, and from Vassar in 1915. Dr. and Mrs. Havens will make their home at Mineola, L. I., where the groom will be medical officer of the research laboratory, with the rank of lieutenant in the Medical Corps.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

THE SHATTUCK LECTURE.*

SHELL SHOCK AND AFTER.

By E. E. SOUTHARD, M.D., BOSTON.

ABSTRACT.

Introduction.
Neuropsychiatry.
Neurosis defined by negatives.
Organic lesions produced by detonations.
"Periorganic" functional cases (functional symptoms about an organic nucleus).
Trench situations and sequelae.
Neuroses and "weak spots."
Imaginary *versus* non-existent symptoms.
To be an analyst of Shell-shock means to be a neuropsychiatrist.
National opportunity.
Work of National Committee for Mental Hygiene.
Importance of study of the Shell-shock victim as an individual.
Neuropsychiatrists in army and navy, and the possible prevention of Shell-shock.
The classical neuroses may affect normal men.
The future of American neuropsychiatry.
Orthopedic and psychological shares in the work on Shell-shock important.
The term Shell-shock denotes almost nothing, connotes everything desired.
"Shell."
"Shock."
États commotionnels versus états émotionnels.
"Shock" mechanical or moral.
Profundities involved in the term "shock."
Relation of Shell-shock to various mental diseases.
Mental disease groups from the standpoint of general medical practice.

Shell-shock and syphilis.
Shell-shock and feeblimindedness.
Shell-shock and epilepsy.
Shell-shock and alcoholism.
Shell-shock and focal brain disease.
Shell-shock and bodily disease.
Shell-shock and old age.
Shell-shock and schizophrenia.
Shell-shock and cyclothymia.
The therapeutic field: miracle cures and reconstruction.
General relations of Shell-shock.
Babinski's splitting of dynamic disease of the nervous system into a psychopathic and a physiopathic fraction.

CALLED to the Shattuck Lectureship rather hastily, and found, as are we all, in a general tempo of haste and unpreparedness, I still felt in duty bound, as neurologist and psychiatrist, to speak on the moot topic of my special field, viz., Shell-shock.^{1, 2} My predecessor in this old lectureship, my friend and colleague Cannon, was constrained to speak on that other shock,³ more familiar to physicians and especially to surgeons, namely, Surgical Shock. And Cannon was able, with his marvelous equipment in physiological theory and experimentation, to provide the members of our Society and a wide circle of readers with a fund of ideas and suggestions concerning Surgical Shock, that for obvious reasons I cannot hope to rival for Shell-shock. But in any event, were the second Shattuck Lecture during this war to be given by a neurologist and psychiatrist, the topic

* Read before The Massachusetts Medical Society, at Boston, June 18, 1918.

simply had to be Shell-shock, even though this self-same Shell-shock be,—to use the neat phrase of another friend, colleague, and physiologist, Porter,—a mere *swash-buckling* disease,* this Shell-shock, compared with the more acutely terrible and life-in-the-balance thing we know as Traumatic or Surgical Shock.

You will note the bungling phrase: neurologist and psychiatrist. Before the war we hardly knew how to designate ourselves, aware that a neurologist must be something of a psychiatrist and *vice versa*. In the Washington crucible, with all our doubt and scorn of the hyphen, nevertheless neurology and psychiatry have gotten hyphenated: the field of *neuropsychiatry* has been laid out; *neuropsychiatric* units have been planned and established; and *neuropsychiatrists* may be said to exist officially.^{5, 6} Whether the neurones or the psyche can be said to have the place of honor in this new group of terms, it would not do to announce: first or last is honorable enough! And with the abolition of the hyphen, a proper traffic may be kept up amongst all parts of the new field of neuropsychiatry. Let us be proud, too, that the Surgeon-General of our Army has established a Division of Neurology and Psychiatry, placed in charge of an eminent neurologist, Colonel Pearce Bailey, well known both for his practical work and for his published book of many years' standing on accidents and injuries to the nervous system.^{7, 8} There is no doubt that the Surgeon-General's step would scarcely have been so soon taken had not the news of so-called Shell-shock been brought back to us by an emissary of the National Committee for Mental Hygiene, Dr. (now Lt.-Col.) Thomas W. Salmon.⁹ The outstanding statistics, the general color of the situation, and something of the variety of methods of care and management of these cases, were brought to us by Colonel Salmon, who now as Director-General of Psychiatry overseas is already beginning to show results from his ripe organizing ability and his impartial grasp of the opinions of the men and the practical aspects of things—whereunder we must place, under *men* also *military* men, and under *things* also *military* camps and hospitals. The new military machine must needs creak: not all the ideas of the brilliant Colonel Emory Upton have, we understand, been embodied in the machine. To have implanted neuropsychiatric ideas in a per-

fectly willing but all-too-busy Surgeon-General's Office is greatly to the credit of all in the work, but especially to Bailey and Salmon. But I doubt if even their unremitting labors would have hatched a new division in the Surgeon-General's Office had not the world been apprised of the appearance in the ranks of all the belligerents of an extraordinary malady or maladies called Shell-shock.

Shortly after the initial flurry in which all the belligerents found themselves,—and during which a great number of hypotheses were set up concerning the apparently new disease, shell shock,—more sober reports began to arrive, and the majority of so-called Shell-shock cases came to be recognized as instances of functional neurosis rather than of organic disease of the nervous system. It is well to stress the fact that it is a majority, and not the absolute entirety, of the group of cases *called* Shell shock that do turn out to be neurotic, since in the first place, puzzling admixtures of organic and functional conditions are by no means uncommon, and since, in the second place, organic disease of the nervous system itself has always been capable, and has proved in this war especially capable, of imitating the phenomena of functional disease. Nevertheless, by and large, the problem of Shell-shock statistically taken seems beyond cavil to be the problem of the neuroses.

But what, after all, are the neuroses? What do we really know about the neuroses other than to say that they are *not* distinguished by the existence of the structural lesions which characterize organic disease of the nervous system? Is not the definition of neurosis purely by negatives? However true this definition by negatives may be from the genetic and general pathological viewpoint, the work of Chareot¹⁰ and in particular of Babinski¹¹ has yielded a number of positive features from the clinical viewpoint, which to some degree make up for the lack of anything positive in the neurones themselves as studied post mortem. An eminent German has recently declared that the data of this war itself go far to prove some of the long dubious contentions of the Frenchman Chareot¹²; and the work of Babinski during the war has strengthened and developed the conceptions of his master, Chareot, as well as the antebellum conceptions of Babinski himself. Whoever wins the great war from the military

point of view, there can be no doubt as to what writers contributed most from the war data concerning the doctrine of hysteria, especially concerning the theoretical delimitation of hysteria from other forms of functional nervous disease: There can be no other answer than that, in theoretical neurology at least, the French have already won the war, if only by means of the remarkable concept set up by Babinski of the so-called *physiopathic* (that is, non-neuropathic and non-psychopathic). But to this novel splitting of the functional neuroses into a psychic and non-psychic group, I shall come back later. For the present, the point I want to make is that, when so much theoretical doubt concerning organic and functional neuropathy holds sway, the practical doubts in the individual case under the varying conditions of military practice and in the upheavals of civilian practice, must be still more in evidence. Case after case described in the literature of every belligerent has passed from pillar to post and from post to pillar before diagnostic resolution and therapeutic success. Colleagues meeting, for example, at the Paris Neurological Society, find themselves reporting the same case from different standpoints,—the one announcing a semi-miraculous cure of a case which another had months before claimed only as a diagnostic curiosity. In the midst of such discussions and controversies, there must inevitably be a renaissance in neurology.

In England, too, controversy has not been lacking, and particularly in the therapeutic field, the believers in sympathy and firmness,¹³ in the electric brush for startling a patient out of his hysteria,¹⁴ and in the process of slow rationalization by the patient of his interior ills,¹⁵ have all raised their voices. The world has naturally learned a thing or two in these latter years, and so does not follow the lure of 100% in the statistics offered.

What sort of thing faced the military surgeons? It cannot be the province of this lecture to rehearse the cases in detail, and indeed any small selection, such as a score or even fifty or a hundred, of cases could give but a ragged and pale impression of the situation. I shall limit myself to the dangerous device of small points and excerpts from a considerable variety of cases.¹⁶

Shell bursts and other detonations can produce *hemorrhage in the nervous system and in*

various organs without external injury. Thus a man died from having both his lungs burst from the effects of a shell exploding a meter away. Hemorrhage into the urinary bladder has been identically produced. Lumbar puncture yields blood in sundry cases of shell explosion without external wound, and Babinski has a case of *hematomyelia* produced while the victim was lying down, so that the factor of direct violence through fall can be excluded. In sundry cases not only blood but also lymphocytes have been found, sometimes in a hypertensive puncture fluid.

Accordingly, *in cases of alleged shell-shock, the hypothesis of focal structural damage to the nervous system or its membranes has to be raised.*

A herpes or the graying-out of hair overnight can suggest organic changes. A case may combine lost knee-jerks (suggesting organic disease) with urinary retention (suggesting functional disorder).

Accordingly, *in cases of alleged Shell-shock there may be a combination of structural and functional disease; but, when the problem is statistically taken, the majority of cases of alleged Shell-shock without external wound prove to be functional, as indicated by their clinical pictures.* Thus, after a mine explosion, a man was hemiplegic, tremulous and mute. After sundry vicissitudes, the tremors were hypnotized away. Then the mutism vanished, to be supplanted by stuttering. Finally the hemiplegia remained. So far as the mutism and the tremors went, this man might belong in the majority group of Shell-shock cases, namely, the functional group. Assuming the hemiplegia to be really organic, we should regard this man as a mixed case, organic and functional.

There is a group of war neuroses, especially clearly brought out in cases of ear injury, in which the functional disorder surrounds the organic as a nucleus. But these "periorganic" neuroses are no proof that the neuroses in question are organic in nature. Hysterical anesthesia, paralysis, or contracture may occur on the side of the body which has received a wound: *the process of such a peritraumatic disorder is, nevertheless, a functional process.*

Sometimes the symptoms are very general. Meigs's returned soldier, an artist, wrote: "I went to a novelty shop. . . Everything. . . a

contrast to our trench misery. I was. . . like a schoolboy on vacation. All of a sudden I felt that my strength was leaving me. I stopped talking; I felt a bad sensation in my back; I felt my cheeks hollowing in. I began to stare and the trembling came on again."

Gaupp's German soldier wrote in a private letter, *e.g.*: "A soldier scolded me because I was running senselessly up and down: finally I got into the Leipzig train. . . everything then got more and more confused in me; I heard my mother call; then I heard shooting again; and finally I was entirely confused. I came to my senses in a room in the station, and towards evening was frightened again at a loud noise somewhere, or a train passing. Then I was told what I had done in the train. I had cried out and raved, tried to get out of the car, called for my father and mother, wanted to go home, imitated shooting; allowed myself to be calmed a little, but began to shout again at very loud noises. When I was out of the train I hit a soldier and tore his whole coat open, so then I was carried to the hospital here in an auto."

After listening to the French artist's account of his Shell-shock tremors and the German soldier's account of spells, possibly of an epileptoid nature, on his homeward way, let us turn to the more stolid account by a British soldier, a case of Batten's. The man wrote his tale out in a state of complete mutism. Plunging into the middle of his story: "The next place we went to was Rue de l'Épinette and we had an awful time there, just before Christmas. We went into the trenches and we were up to our middle in water, and in some places it would have taken you over the head. We got relieved by the Royal North Lanes. . . We were just making some tea when the fall-in went and we were told that the Germans had broken through the North Lanes. . . If the Germans had attacked again, we could not have tried to shoot as we were hardly able to stand for the cold and with the wet kilts on our legs it was awful. We got nothing to eat except three biseuits that some of the men went out and got. When we came out of the trenches on Christmas Eve, we all looked like old men and a lot of them had to be carried. . . The next place we were at was at that big fight at Neuve Chapelle. . . We got the trench all right and I got orders about 4 p.m.

to go back to our own trench and bring along the belt-filling machine belonging to the machine gun. . . . We got into our trench all right and I got this box on my back and started back to the trench. I was just stepping out of the trench when a shell burst just over my head and I went down. When I came to my senses I was lying in our support trench where I had been carried by two of the men of the Fourth Black Watch. One of them said something but I couldn't hear him and I tried to tell him so, and then I discovered I could not speak."

So much will suffice to give some idea of trench situations and their sequelae. The literature contains beautiful examples of narratives elicited under hypnosis in which all the forgotten details are brought richly back.

Schnister claims a hypersensitive phase after the shell explosion, during which time the patient is particularly subject to hysterical symptoms. A good many cases specially reported by excellent observers demonstrate that the same kind of hysterical or neurasthenic effect may occur in the absence of any obvious shell explosion, emotion, or somatic disorder of any sort. What is the nature of these disorders? The literature is practically unanimous on the point: *We have to do merely with the classical problem of the neuroses*, and when all the data are some day united, we shall doubtless know a great deal more about the neuroses. That the process, whatever else it does, is rather apt to pick out pre-existent weak spots in the patient (the habitual gastropath becoming subject to vomiting; the old stammerer stammering once more or even becoming mute; the man always "hit in the legs" by exertion, now becoming paraplegic) is obvious. The striking instances in which an old cured syphilitic monoplegia, or an old hysterical hemichorea, come back under the influence of shell explosion in precisely the limits and with precisely the appearance of the former disease, indicate how various a factor may be the *locus minoris resistentiae*.

Would that the medical profession understood these neuroses at their true value! Only too frequent is the impression on the part of the profession that *imaginary symptoms* are by the same token *non-existent*! I have even heard a physician well trained in somatic lines say that Shell-shock did not exist because Shell-shock was nothing but neurosis, and neuroses

were characterized by imaginary symptoms,—accordingly neuroses, being imaginary, do not exist! All of which reminds us that many of the profession were entirely skeptical when Charcot made his original observations. Some men here in America felt that, whereas hysteria might occur in Paris, it did not occur to any extent in America. The Shell-shock data of this war will abundantly prove to the profession the existence of the neuroses, and I feel that physicians will have to brush up their ontology to the extent of conceding that *a symptom may be in a sense imaginary and yet not in any sense non-existent*. Babinski points out a case of *hysterical* paralysis of a leg which led the patient to lean so heavily upon his arm as to produce an *organic* crutch paralysis. It would be to no point to argue that the hysterical paralysis was here non-existent. Of course we shall have to meet the false analogies drawn from methods of cure. If a paralysis can be cured in a few minutes by the electric brush, or by hypnosis, or on emergence from chloroform, or by some other modern miracle, is it too much to ask the *profession not ever to say that this rapid and seemingly miraculous cure was brought about because the disease was non-existent?!*

The fact that a soldier may get war dreams though he has never been in the fighting zone and never by any chance observed the circumstance of war, or the fact that a man can become mute on the second day after a shell explosion because the night before he had dreamed of some hysterically mute patients on his ward—these facts again, although they argue a psychogenic origin for the phenomena of so-called “Shell-shock,” do not at all mean that the actual physical explosion in other cases may not have its very tremendous importance in those other cases. This is shown by the exceedingly interesting phenomena of localization or determination of symptoms to a given region under the special local influence of the explosion. Thus, in the schematic case, an explosion to the left of the soldier produces anesthesia and paralysis on the left or exposed side. Now and again a case will show such anesthetic and paralytic phenomena upon the side exposed to the explosion and some hyper-tonic, irritative phenomena upon the other side. One gets the figure in one’s mind of an organism fixed, immobile and numb, on the spot by

the explosion—and the other half of the body, as it were, attempting to run away from the situation. One side of the body, as it were, plays ‘possum, the other tends to flight.

Of course these physical phenomena should not blind us to the emotional ones. Now and then the multiple causes of a case may be analyzed as, for example, one of blindness in which a series of factors emerged, such as excitement, blinding flashes, fear, disgust and fatigue. I cannot here go further into these details, and I need no longer insist upon the fact that *surrounding the problem of Shell-shock means surrounding the problem of nervous and mental diseases* as a whole, and that thus to be a shell-shock analyst means to be a neuropsychiatrist. In the first place, the organic problems of the nervous system are brought up constantly in differential diagnosis, but the functional problems divide themselves up in a perturbing manner into a fraction properly termed the “psychopathic” (that is, after the manner of hysteria), and “non-psychopathic” (that is, after the manner of reflex disorders of Charcot, newly named “physiopathic” by Babinski.)

The judgment, what we in America should do about all this, was none too easy, particularly as, besides the mission of Col. Salmon, above mentioned, no scientific commissions were sent abroad, and no authoritative neurological workers from England or France had appeared upon our soil until a quite recent date. The Research Council is now under way, however, and in its second annual report chronicles as a special achievement of the Division of Medicine and its sub-committee on psychiatry, that a laboratory for the study of Shell-shock is to be established overseas.¹⁷ The Council has also announced that it has under consideration plans for sending commissioners and for receiving distinguished visitors dealing with the great topics of the war, among which, doubtless, Shell-shock will assume a high place. Before we condemn too lightly tardiness in these matters of scientific inter-communication, we must consider our otiose past. It is now some twenty-five years since our great paleontologist, E. D. Cope,¹⁸ wrote concernedly over the future of thought in America. He pointed out how the European had come to America “to escape loathsome tyranny, political, social, or theological, or to better his conditions of physical liv-

ing." Physically, Cope went on to say, the transplanted European has bettered himself; but has he bettered himself mentally? "What," wrote Cope, "is the outlook for the American? Will the process of natural selection only, the 'devil-take-the-hindmost' doctrine of Darwin, be sufficient to develop the higher mental faculties, or having developed them, enable them to survive and to become general or not?"

"In the first place, we lack in America," continued Cope, "the great stimulus to mental progress,—international jealousy and emulation. In this respect we are situated very much like the Chinese, but if anything, less favorably." If what Cope said was true twenty-five years ago, it is, sad to say, still truer to-day; and indeed in our own specialty of medicine, and in my particular small corner thereof,—neuropsychiatry,—instead of hitching our wagon to the international star of jealousy and emulation, we have reversed the process and hitched our stars to the Teutonic wagon; and I can say for the nomenclature and terminology of mental diseases with the hearty approval, no doubt, of the body of the profession, that the creaking of that wagon is still heard in the land; and this despite the fact that our English vocabulary for the things of the mind, thanks to the philosophical speculations of the eighteenth century, is heavy enough in itself to make any wagon creak.

But when it came to the point of sending our neurologists and psychiatrists abroad to plunge into the midst of a friendly but none the less sturdy rivalry and emulation with our English, French, and Italian *confrères*, what was to be done? Hereupon the work of the National Committee for Mental Hygiene, with its organization planned and perfected by Lt.-Col. Salmon, and carried on with acuteness and impartiality by Dr. (now Major) Frankwood E. Williams, stepped in to do what it might. The last time I heard statistics, I learned that over 360 nervous and mental doctor-men were on the rolls of the Division of Neurology and Psychiatry. Some of these, being comparatively well trained both in neurology and in psychiatry, were plunged forthwith into the service. You who have scanned the newspaper lists have seen something of their assignments to camps and hospitals in this country and overseas. But many of these candidates for work in neuropsychiatry and for the oner-

ous work of divisional and post psychiatrists, had to be specially trained. Thereupon the Surgeon-General's Office, through the Division of Neurology and Psychiatry, took a hand and sent many of these men for training to different institutions, including the all-too-few psychopathic hospitals and psychiatric clinics of a nation somewhat tardy in these matters. The men who needed brushing up in neurology were sent to such centers as the Neurological Institute in New York, and the Post-Graduate Neurological Clinic in Philadelphia. The men who needed brushing up in psychiatry were sent, for example, to the psychopathic hospitals at Ann Arbor and at Boston.

It was while I had the task of giving brush-up instruction to a number of the Surgeon-General's men, as military director of the Psychopathic Hospital in Boston, 1917-18, that I began that collection of cases which gave me the courage to speak to you today concerning shell shock in its intra-bellum and post-bellum aspects. In the collection of upwards of 700 cases from the literature, 589 of which are embodied in the published series, I found case after case which seemed to be far more informative than any of the dry-as-dust dogmatic statements which I found in sundry places.* Had not my valued colleague in bibliography, Private Norman Fenton, been sent off on his proper military duty in Base Hospital No. 117, we might possibly be reading eases yet. However, I am bound to say that with the publication of the books in the *Collection Horizon* and their publication in England and America under the editorship of Sir Alfred Keogh, many of the principles are beginning to stand on their own feet and to deserve the honor of coarse print.

I make no doubt that this plan has already made itself effective, and that the men thus trained will not only equip themselves splendidly in the war, but also, many of them at least, return to neuropsychiatric work on a high level in post-bellum days. It is no secret, however, that the National Committee for Mental Hygiene and the war work committees of

* I bear in mind a phrase of Justice Holmes in comment upon the Langdell case system as used in the Harvard Law School (which system, as you may remember, gave Cannon his idea of teaching medicine by the case system), that nothing taught by the case method lies "dead before you on the printed page." In passing, I may make the obvious remark that the Langdell case system as applied to the law was nothing more or less than the only method in high esteem in medicine for many decades, nay, centuries, and that the readers of Sepulchretum Boneti, or even of such works as those of Andral, may see to perfection (so far as the lights of those days permitted) the workings of the case method.

the American Neurological and the American Medico-Psychological Associations had to drag the depths of our profession for suitable men.* All honor to their concrete results!

Well, if we come back with our shields and not upon them, all these matters will doubtless be righted after the war. For the moment, our neuropsychiatric contingent appears to be doing its job well; we learn that some 20,000 men have been excluded from the draft army for reasons lodging in the nervous system, and among these we hope we have excluded many a candidate for neurosis, functional or organic. To be sure, we must not raise the hopes of the public too high, since straightforward evidence from the various belligerents shows us that perfectly normal men, so far as any physical or mental test can call them so, and so far as any investigation of their heredity and their acquired soil can determine, have, nevertheless, become subject to some of the classical neuroses. We must now erect the hypothesis that *the classical neuroses may in some, though certainly a minority of cases, afflict normal men*. Under the war conditions of investigation touching the family and personal histories of the men, perhaps we should not be too sure of this hypothesis; but the army records will after the war allow us to make or break the point forever and thereby throw the clearest light upon the vexing problems of industrial medicine, wherein progress in general has been so slow on account of the partisanship of the corporation and plaintiff's attorneys. At all events, the neuropsychiatrists, aided by the psychologists with their elaborate mental tests, have done their best to prevent Shell-shock so far as the problem consists in excluding nervous and mental weaklings.

Overseas, meantime, many men are at work in the English, and some in the French, hos-

pitals studying the methods of their allied *confrères*. These men are for the most part of the ardent younger strain, though in some cases older men with established reputations have been able to go. We hear that most of the medical profession in every belligerent country, except our own, has in a sense been mobilized for the work.* If we are to take our place amongst what Mr. Usher has recently termed "the Atlantic powers," we must in all fields thoroughly mix our thinkers and workers with those of Western Europe, and the task which faces medicine is so great that a peculiarly intimate commixture, or indeed, a general *compounding*, is on the cards for physicians. And, whereas in sundry branches of medicine we have a good deal to teach our trans-Atlantic fellow physicians, I am afraid that in the field of neuropsychiatry the flow will not be quite that way.

Perhaps I here talk too much of futures for American neuropsychiatry; but any one who has dealt with the nervous and mental flotsam and jetsam in civilian practice, say in the wards or Out-Patient Department of the Psychopathic Hospital, or in any similar zone of social advance, must know that the fate of the individual patient,—whether an ex-soldier or an industrial wreck,—will depend upon the community standard in the matter of its medical experts.

We are all very proud of the part our country is taking in reconstruction of an orthopedic nature.¹⁹ Perhaps we take our orthopedists here in Boston too calmly. It would not do to praise orthopedics too highly in the trolley car, for the man across the way might turn out to be an orthopedist, and it would never do to praise a Puritan to his face! No one but knows that the structural side of human refitting will be done quite to the Bostonian taste during and after this war, and I do not need pause in laudation of the competent men in the reconstruction hospitals

* In passing, I cannot help commenting on how tardy, nay, delinquent, our nation has been in its provision for the development of neurological, psychiatric and neuropathological research. For a nation that could produce a Brown-Séquard and a Weir Mitchell our record is unhappily poor. Some day, when not overborne by deficiencies in the concrete, I hope to write a letter on the neglect of research upon the brain by the great American foundations. Perhaps so great an alarm as Shell-shock itself may serve to waken these foundations up. One day I remarked to one of the great foundation men: since there could be no question that the brain is the great tool of research, why should there be any question of turning that research tool upon itself? The expected answer came: "My dear fellow, you are in no worse case in pleading for your science than all the others pleading for theirs." I went away, and thereafter looked about me to see what lines of research were neglected more grievously than those of brain and mind, and I found no other branch in so stemmotherly a bed. I will make one exception. Possibly pharmacology is a branch as grievously neglected; but there again, very possibly we have hitched our stars to Teutonic wagons, or, easier still, bought wagon-loads of German drugs and let it go at that. Perhaps the neurologists and pharmacologists might make common cause in this plaint, since the neurologists, at all events, would greatly benefit by even the smallest advance in pharmacology.

* What our higher councils may determine in this matter for our own country I do not know, but, at all events for the neuropsychiatric branch of the profession, it would seem within the bounds of reason to consider a plan by which the entire body should be alternated in work overseas and on this side, so that the whole group shall be permeated with the lively new ideas of the allied world. Not being for the moment even a contract surgeon, I can safely say that little or nothing, so far as I can see, prevents the execution of such a plan except two matters, logically microscopic in size, but looming very large in the military mind, viz.: The impropriety of high military rank for reserve men of high civilian achievement, and the insistence upon giving applicants no promises concerning their futures. I have heard these questions argued in half a dozen cities by men in and out of the military service, and, for my part, I find the whole matter reduces in the end always to one phrase: "*They will never do it!*" Who the *they* may be, I shall leave to your imagination, though I am sure the dreadful Juggernaut is not the Surgeon-General's office.

and their eager adjuvants, the occupation-workers who are now being trained.

In another direction, the neuropsychiatrist also looks for aid, namely, in the direction of psychology.²⁰ Not only in the matter of exclusion of unlikely draftees, but also in the matter of vital adjustments, we must turn to psychology. It is not (if I may venture into this thorny path) that we are to hand over our function as diagnosticians and therapists to psychologists, any more than we hand over these functions to chemists. After all, psychologists and chemists, though they represent sciences in some sense greater, or at all events more general, in their scope than medicine, are not and inevitably cannot be diagnosticians of diseases. Nothing in the Grand-Palais in Paris or elsewhere is any better probably than the work at Hart House, that building which was to have been a students' club in the University of Toronto, but which now houses the shrewd devices and human enthusiasm of the psychologist, Prof. A. E. Bott, who seems to combine with his psychology an orthopedic and neuropsychiatric sense which would do credit to a doubly-trained (orthopedic and neurological) physician, were Dr. Bott such and not a psychologist merely. Some of Bott's ideas he gratefully refers to the psychologist Franz, the scientific director of the Government Hospital for the Insane, St. Elizabeth's, Washington.

The divisions of the Surgeon-General's Office devoted to neuropsychiatry, to reconstruction, and to psychology, not only theoretically must, but practically do, coöperate to the end of reconstruction not only of the so-called "Shell-shockers," but to every sort of neuropsychiatric case.

I intend now to turn to some considerations concerning the term "Shell-shock" itself, a term which is, and ought to be in some senses, taboo. I shall follow my discussion of the term with some account of the relation between Shell-shock and the main orders of mental diseases, showing that the Shell-shock problem cannot be surrounded except by the widest and deepest neuropsychiatric processes of diagnosis and therapy. First, now, concerning the term *shell-shock*. William James called "pragmatism" a new name for old ways of thinking. Yet the term pragmatism was such an exact and denotative rendering of those old thinking ways that no one can now ever go back of the

new term. But what can be said for the new term *Shell-shock*? Is it not a new name for old diseases, and a new name so inexact and non-denotative that nothing but regret could follow its scientific adoption? Everybody concedes that the diseases called Shell-shock are as old as medicine, and only to be distinguished as more frequent in this war than ever before, and as occurring in the male in unexpected numbers. But more increased frequency does not necessarily argue anything scientifically novel about these diseases, and there were always enough examples of these affections in the rougher sex to permit sufficient study.

When James chose the name pragmatism for some ways of thinking, it was the deep and dialectical professor finding a term for common views. The unknown inventor of the term *Shell-shock* was presumably neither deep nor dialectical. He was in some sense doing the opposite of James' exploit with the term pragmatism; he was finding an inexact and non-denotative term, *i.e.*, *Shell-shock*, for the more or less exact medical concept, *neurosis*, a term which, just by reason of its Hellenism and its *high-browism*, he could not understand and would not use.

The term *Shell-shock*, let us grant, is inexact and denotes little or nothing. But why drag in exactitude? Above all, why lug in denotation as an aim in the present world? Shell-shock may denote nothing, but it connotes everything the laity desires. Yes, you reply, but does it not connote and suggest too much? Shell-shock denotes, to say the least, *shocks* and *shells*—yet we know shell shock *sans* any shock and *sans* any shell, nay *sans* either shell or shock.

Let us drop for the nonce what the term *denotes*. Does it not *connote* the war? What better symbol of the great war, by and large, both as war and as the greatest of wars, than the shell,—the shell of powder, the shell of fire, the shell of death by gas, the shell of tears, the shell of sneezing that strips the mask for death, the sea torpedo, the aerial torpedo, the mine, the shell of the psychological supergun, the shell that sank the *Lusitania*, and above all, the shell of fear, the shell of the German's own psyche which he loaded in fear with all the powder and fulminates and gases that forty years of his fear could generate. Nay, the greatest of all these constituents was undoubt-

edly fear, and the whole of *Mitteleuropa* for these many decades had kept loading and loading itself—one giant self-bottling torpedo of fear which we poor free-swimming Yankees sometimes mistake for the aggressive anger of the crook among nations. But I am of the belief, and some Americans who stuck it out for months in Germany earlier in the great war have told me so, that fear is the bottom emotion of the Teuton and that, in the accursed filling of the great Teutonic torpedo lying there in the midst of Europe, the Kaiser and his crew served but as catalysts and enzymes, not as the ingenious devils we picture them. Why, the whole stupid game, psychologically speaking, is to implant in *us* fear and ever more fear, and every message, and every act is a shell to give us fear—and fear of what? Of real shells, of murder, of torture, of rape. The Belgian triangle of horrors, the *Lusitania* itself, are nothing but samples of what would serve the home market. Do you think the Germans really were *not* afraid of the Belgians, *not* afraid of Russian mobilization, *not* now afraid of our American shells and the new gases they will contain? I repeat, the Germans are born to more fear than we free-swimming Yankees readily understand, and the shell, whether of explosives for individual use, or the shell of the great god Thor's fear in the face of the greater God—the shell remains the best symbol and token of it all.

From the shell as connotative prince of terms in this war, let us turn to the second theme of this new slang term, *Shell-shock*. If the prototheme, shell, is often to the naked eye absent, the deuterotheme, shock, is in still worse plight. One of the most telling of observations by the neuropsychiatrist, working with his division of troops, is the observation, long antecedent to the beginning of obvious *Shell-shock*, of sundry premonitory symptoms. In fact, the divisional neuropsychiatrist, in his heart of hearts, hopes to stave off sundry, if not of course all, cases of *Shell-shock* by proper preventive measures. One hyperenthusiast, at least I think him so for this war and this generation, indeed hoped to prevent by educative talks to soldiers the development of *Shell-shock*. But *Shell-shock* is doubtless not theoretically so easy to suppress out of civilization as would be, *e.g.*, syphilis.

In a shock there should be some suddenness, and I am bound to admit that many a case of *Shell-shock*, even if the actual shell appears on the scene, seems to develop without that quality of attack or seizure that the term denotes.

Shock was, in fact, at the outset, a military term. Although we now define a shock as a sudden and violent blow, impact, or collision tending to overthrow or to produce internal oscillation in a body subjected to it, and sometimes even mean by shock the actual disturbance of equilibrium or internal oscillation resulting from such blow, impact, or collision, yet the term before it obtained this rather figurative use, was a military term for an attack.* Besides its military use as a term for the attack, we find the term in use both for mechanical and for moral agitations and commotions. I find that beyond the mechanical definition above given, Murray also defines shock as a sudden and violent effect tending to impair the stability or permanence of something—a damaging blow (to a condition of things, a person's health or constitution, an institution, a belief, etc.). But you will observe that a shock, in the spirit of our language, may be either mechanical or moral, but the suddenness of a shock remains its one constant feature, which it has borne perhaps from tree-stump days through barbarian assaults, down to mechanical and electrical effects, on the one hand, and moral and emotional effects on the other.

Now, in the *Shell-shock* group, the French very neatly distinguish what they term *états commotionnels* from *états émotionnels*. They think of the *états commotionnels* or commotional states much as we think of *commotio cerebri*, that is, of a physico-chemical happening in the brain of an essentially curable (or reversible) nature; that is, of something that falls short of being, as they say, *lésionnel*, namely, as bringing about a structural lesion. That is, they distinguish a brain with a physical focal lesion from one which has sustained a physical jar or commotion, and they distinguish the effects of both of these from the *états émotionnels* or emotional effects of an in-

* In fact, like many roots, the origin of the root of shock is wrapped in obscurity. The French word *choc* was borrowed by various languages for military purposes, though some of the French lexicographers gallantly hand the term over to Old High German for "swing," and some of the German lexicographers, perhaps dodging such military renown, passed the term up to Old French for "the stump of a tree," as suggesting somehow that the attack of troops felt a bit like the pioneer's attack on tree stumps. However this may be, the figurative use of the term has gone beyond all military circles, only now to return in the term "*Shell-shock*."

jury. The nomenclature here brings out one of the most fundamental difficulties in the whole field of so-called Shell-shock, namely, the distinction between structural conditions, microscopic or macroscopic, on the one hand, and functional conditions of a psychopathic nature, on the other. The *commotion** would affect the neurones themselves in some perhaps invisible but still genuine physico-chemical way, whereas the *emotion** would affect these neurones merely after the manner of the normal emotional life, except that the neurones would perhaps deliver an excessive stream of impulses. Of course, when we get down to the undermost level of this question and seek to distinguish between invisible physico-chemical changes in neurones of a morbid character, from invisible neuronic changes and relations of a quasi-normal character, we find ourselves plumb in the midst of sundry deep questions, not merely of molecular physics, but even of metaphysics. Crile has driven some of these speculations out into the open, where they may at least be examined on all sides and disposed of according to various views. For practical purposes, we may think of what the French call *états commotionnels* as tending toward the naked-eye lesion in their nature, whereas the *états émotionnels* are something a good deal more subtle.

Shells were made, it appears, long before the idea of shock effects within the nervous system came into the general mind; thus in the seventeenth century, a gunnery book speaks of filling "small shels with fine gunpowder," and the Thomasson tracts in the British Museum (quoted by Murray) make this curious observation sometime after 1640: "'They swear they will never fight more against guns that shoot twice,' meaning the two cracks, the mortar and the shell." But these original pacifists did not yet have in mind, so far as the lexicographers teach us, the effects of shock. We gather early in the seventeenth century the mechanical idea at the bottom of the term shock.† Whether these dictionary straws indicate which way the wind blew in transferring

the mechanical idea over into the moral one, I do not know; but it is very plain that the sense of the term shock is embedded in our literature in both significances: the *mechanical* and the *moral*. In the medical literature, Abernethy already in 1804 spoke of the shock of an operation. Morris wrote in 1867 a practical treatise on shock after surgical operations and injuries. The relation of this surgical shock to the nervous system was probably implied in the term at first.* But while the medical mind was using the term shock in a manner curiously distant from its original significance of a sudden impact, the rest of the world was using the term shock most freely for a damaging blow, not merely to one's health or constitution, but to one's beliefs or moral situation. Congreve, for example, used this term shock in its moral sense as far back as 1694, and the idea of using the term shock for a syncope, a collapse, a concealed hemorrhage, or the effects of internal complications in sepsis, would have been quite blind to the ordinary man, since the term shock had been robbed of its suddenness by the surgeons, who had transferred a good term for cause into a somewhat poor term for an effect.

I linger over these nomenclatural matters, not merely because I like to do so, but also because the two horns of the dilemma, mechanical and moral, commotional and emotional, physical and psychical, traumatic and, as it were, merely "seismic," get well into the mind by a discussion. We see clearly that it is no superficial division of facts that we are making when we deal with Shell-shock.

At all events, you must be convinced that there is a perfectly legitimate use for the term shock for a condition which is either mechanical or moral, and sometimes both in its origin and in its effect. It is perfectly right for us to bear in mind the figure of shock as we find it in the cavalry pictures of Bourguignon (1621-1676), in the Louvre, or in the more accurate detailed pictures of Wouverman (1619-1668), as we see them both in the Louvre and in Dresden. Such pictures of the military assaults were very frequent in the seventeenth and eighteenth centuries. We hope for their histor-

* It is to be observed that there is motion in each of these terms, "commotion" and "emotion," and it was, to me, a curious observation when I was trying to follow out their early usages, that the Romans apparently used the terms somewhat in the reverse manner, regarding *animi commotio* or *permotio* as very nearly something which we would have to translate by the term emotion.

† As in the following sentence, which I also gather from Murray from Astruc on Fevers, 1746, "The corresponding parts of the medullary substance are so shocked that the animal spirits are more vigorously protruded into the nerves." And even before that date (in 1733) Belloste speaks of mercury as producing its effects by "its shocking and disengaging the fibres."

* The idea was of shock as a sudden debilitating effect produced by an over stimulation of the nerves, by intense pain or by violent emotion, and, by simple transfer, the term "shock" was then given to a condition presumed to be one of nervous exhaustion resulting from such over-stimulation, pain or emotion; but all this is very far from the fine physiological, physical and chemical ideas concerning surgical shock which are now at our command, and the term shock passed out of the medical mind as having to do with anything except surgical shock until the renaissance of the slang term *Shell-shock* of this war.

ical interest that they shall not all be moved from the Louvre to Dresden and Berlin as a result of the war.

Then we see the shock idea in its mechanical or electrical form being subtly studied in a variety of formulae which have never quite resolved the problem of the three bodies, and perhaps never will resolve it. We fix our minds upon the molecular profundities of the world, and wonder with Charles S. Peirce how we can transform the movements of the molecules of solids from their orbital paths into the paths that molecules of liquids move in, namely, curves, or into the rectilinear paths affected by the gases.²¹ We perceive that the phenomenon of shock is, after all, one of the last problems to be solved by man. But throughout this development of the shock idea, the common man has used the term in a pretty obvious moral and physiological sense, and he, the common man, feels constantly not only the idea of shock as somehow conveyed from without, but somehow also setting up uncomfortable vibrations inside of his mind and of his body. Plato himself speaks of quakes of the body, using the self-same term, *σεισμός*, which is used of earthquakes.

I have thus somewhat lamely and superficially tried to sound the depths out of which the effectiveness of the term *Shell-shock* is born. It is not merely its alliterativeness and disyllabic punch, but it is that these terms both serve as containers for contained. Both shell and shock refer not merely to their outward physical figures, but also to their inward, functional, nay, psychical meaning, and incidentally the terms bring out for us today something of the ultimate physiological and psychological questions which confront the analyst of these conditions, whether you term them picturesquely *Shell-shock*, or more exactly, *war neurosis*.

Civilization, Justice Holmes has somewhere said, consists in the maintenance of complexity. Never has the human cerebrum (the highest aim, as Sherrington has said, of science) yet been subject to such enormously disproportionate assaults as in this war. The profound sexual cataclysms which have been thought by some to underlie the hysterical behavior of the weaker sex, have here been equalled *ab extra*. It is conceivably much easier in the weaker sex, proceeding from interior lines of the sex glands

and in other internal ways, to produce such curious blottings-out of function as we see in hysteria, than it could ever be to produce in the more solid and immobile male the same effects either from within or from without.*

Let us leave the term *Shell-shock*, then, with one more observation, namely that the term appears to be a perfect term for the ordinary man, as it means much and little, connotes enormously and denotes a minimum, and casts the hearer forthwith back upon the expert. When the ardent social worker hears the term *dementia precox*, she feels herself almost entitled to believe that the patient in question is demented, or is going to become demented. A similar inaccuracy lurks about the term *precoc*. For that reason, sometime I intend to write a paper entitled "*Non-dementia, Non-precoc*," to contend with a notion which I regard as positively dangerous to the fate of certain persons given that diagnosis. But confronted by the term *Shell-shock*, the ardent social worker or the ordinary man fails to get any incorrect notion about the nature, and especially about the prognosis, of the condition. If there is any suggestion of prognosis, it is the correct suggestion of curability possibly conveyed by the suddenness implied in the term shock; but I defy the ordinary man to get from the ordinary term *Shell-shock* very much that denotes anything in particular. All he gets is an enormous connotation. This connotation may run back for the race into tree stumps, savages brandishing spears, palatial decorations, the protrusion of animal spirits, the Leyden jar (sometimes familiarly known as the "shock bottle"), and the aspen shaking of the man in fear or its interior equivalent. But whether the slang runs back so far or no, and whether the shell is a shell of powder or a shell of fear, and whether the shock is of solid particles or in a moral sense,

* Whether the molecules of the male proceed in more definite orbits or quasi-orbits than do those of the female; whether in the female these molecular movements run in more curvilinear ways, may not ever be known. As to the properties of protoplasm, or of what he terms *life-slimes*, let me quote from Mr. Charles S. Peirce²² as follows: "It is true that an opinion has been emitted and defended among biologists, that there is but one kind of protoplasm; but the observations of biologists themselves have almost exploded that hypothesis, which from a chemical standpoint appears utterly incredible. The anticipation of the chemist would decidedly be that enough different chemical substances having protoplasmic characters might be formed to account, not only for the differences between nerve-slime and muscle-slime, between whale-slime and lion-slime, but also for those minuter pervasive variations which characterize different breeds and single individuals." Whether males and females sufficiently differ in their respective slimes to account for all the different features of our social environment, I would not say; but it is the province of the present war to prove that their nerve-slimes, as Peirce would say, are subject to the same kinds of liquefaction tracks. At all events, hysteria in the male is no longer a *curiosum*.

the problem is implicitly laid down in the slang.

In surrounding the neuropsychiatric problem, we shall not, however, be able to get on with symbols; we should do far better, no doubt, with cases. Even these, today, I am not able to give you in detail. Their collection and arrangement has proved that surrounding the Shell-shock problem means surrounding the problem of neuropsychiatry; means conceding that a particular so-called Shell-shocker might even very possibly be something quite apart from the field even of the functional neuroses, and sometimes quite far apart even from the organic neuroses and psychoses.

At this point, I can probably do no better than proceed with a consideration of the relations between so-called shell shock and the major groups or orders of mental disease. Those of you who have attended clinics at the Psychopathic Hospital recently, or have had time to dip into sundry writings of our staff, will be familiar with the new ordering of old entities which we have adopted for the practical purposes of diagnosis. We have not propounded a new classification of mental diseases, for indeed, luckily, that is not necessary, such is the unanimity* of the psychiatric world at the present day over the majority of the major groups.²³ I shall enumerate these. We think of mental diseases as I. syphilitic; II. schizophrenic (that is, feeble-minded in some of its phases, including even slight degrees of subnormality not entitled to be called feeble-minded in the ordinary sense); III. epileptic; IV. alcoholic (or due perhaps to some drug or poison); V. encephalopathic (in the sense of some focal brain disease); VI. symptomatic (in the sense of some somatic disease); VII. senile (or presenile). The seven groups so far enumerated, I believe the general profession is pretty well equipped to consider, at least roughly to diagnosticate and to handle with due respect to the interests of the patient and of the community. I am bound to say that some of my colleagues would not go so far as to the competence of physicians

in general in these fields, and one is aware that a plenty of mistakes have occurred even in these groups through the bad judgment of practitioners. Nevertheless, I hold to the conception that our profession is reasonably well equipped to handle these greater groups, having in mind all the while the appropriate temporary calling-in of the specialist. But there are two more groups, in addition to these seven, in which I am not so sure that the general profession knows as much as it should. I refer to VIII, the schizophrenic group, commonly known as the dementia precox group; and IX, the cyclothymic group, sometimes termed the manic-depressive group. It is the victims of the diseases that constitute these latter groups that ought unconditionally to be excluded with few exceptions from the army; and it is the study of these conditions which ought to be carried out as a part of every man's post-graduate training, not merely for his work on draft boards, but for his work in civilian practice. There is another group of, X, psychoneuroses with which the profession regards itself as familiar, and with which it doubtless is familiar, in what might be called *blooming examples* of hysteria, neurasthenia, and psychasthenia. But the nub of the situation lies in the fact that the diagnosis of instances which are not such blooming examples is difficult, and hence it was that I qualified my statement as to the competence of the practitioner in this tenth group. It is, of course, the tenth group, of psychoneuroses, into which the majority of the Shell-shock cases fall.

Now a study of the literature of the belligerents having Shell-shock in mind as its special topic and aim proves to require a study of war literature in all of these groups. There are cases of so-called Shell-shock which even well-prepared medical men have placed in the neurosis group, when they should have been placed in one or other of the groups mentioned.

I shall now consider in turn some relations of shell shock to the several groups above mentioned.

SHELL-SHOCK AND SYPHILIS.

If the tempo of this war permitted, the race might turn a great trick. For one of the ways to surround the spirochete is to learn his every habit and plan of multiplying life. Aside from shell shock in its traumatic sense, the syphilis records of this war²⁴ will, properly utilized, for years to come define the term of infection and set up mile-

* That I assert such unanimity may astonish you, but I believe even the non-specialistic practitioner is decently familiar with the outlines of 80% of our psychiatric problems—at all events, with eight out of ten of the major groups we have placed in a certain order in our practical key. There is an eleventh, rag-bag group—the conditions which even the psychiatrist feels incompetent to deal with. These are a variety of psychopathias that, to be sure, appear somewhat even in the military service, but they do not bulk especially large in the problem of Shell-shock. Aside from this eleventh, rag-bag group of psychopathias, we deal, as above said, with some ten groups, seven of which are sufficiently familiar in their major outlines not only to the general practitioner, but to many specialists who are not psychiatrists.

stones for tracing the post-infective history and at last the complete natural history of syphilis itself and, in particular, of the most intriguing of all spirochete problems, that of neurosyphilis. As I have elsewhere said, hardly a more important problem faces the race than this problem of syphilis, and not the least of the sub-questions here is that of neurosyphilis.²² But the solution of neurosyphilis problems, such as the incidence problem (to be solved by the post-bellum utilization of the army and navy records), will be vastly aided by Shell-shock. The Shell-shock records will contribute perhaps a little to the incidence problem of neurosyphilis, but enormously more to the problems of its course in time and of its spinal and cerebral placement. When the governmental and state authorities begin to note, a decade after the war, the to them unexpected augmentation in the number of tabetics and paretics, there will be ample time to search our military records,* to define and describe the curve of post-infective history followed by syphilis of the nervous system. But today we cannot honestly say we see the end of this war or the beginning of an armistice. All we can do is to pluck a brand from the burning. Now that brand from the burning syphilis question is precisely the Shell-shock variety of traumatic neurosyphilis. Little increments of knowledge have been trickling over from one civilian branch of medical *tychastics*, viz., the growing science of industrial accidents; and the exact natural history of, say, traumatic paresis is being laid down by the eager sparing efforts of experts testifying before industrial accident boards. Before the war, I had long been of the opinion, on the basis of the Boston Psychopathic Hospital's work for the Massachusetts Industrial Accident Board, that firms might well investigate the blood sera of those employees engaged in dangerous work, to the end that special insurance devices be adopted for syphilis-positives. By chance, I have here mentioned the employers first; but who can doubt that the community in general and the employees in particular would or should be grateful for the knowledge of the syphilis in their midst? Nor can I think of a more subtly effective educative measure than the general application of this preventive diagnostic device: who but must inquire into the reason

and necessity of the measure and cut his jib thereby? Now the trickling stream of knowledge from industrial *tychastics* might readily swell into a considerable river of facts from the accident-lore of the war, if only, by the grudging permission of the Kaiser, there were time to do proper justice to the *tychastics* of the war. Trauma or no trauma, cerebral concussion or psychic shock, let all our workers study and record in this war the antecedents, prodromes, course, remissions, exacerbations, curability, signs, symptoms, and conditions of the neurosyphilis of the war, particularly the Shell-shock variety. In that manner shall we spy out the chemical and physical ways, somatic and cerebrospinal, of syphilis—and in the process of stoning the Hohenzollern serpent scotch that other and more terrible autocrat of man, the spirochete. For while the Hohenzollerns must pass, it is not so sure about syphilis. We need another Cato the Elder to cry always, *Delenda est spirochaeta!* Down with syphilis!

SHELL-SHOCK AND HYPOPHRENIA (FEEBLEMINDEDNESS).

The possible relations of Shell-shock to feeble-mindedness are of some interest. We know that "Shell-shock picks out certain nervous and mental weaklings and indeed that one author claims as high a percentage as 74 for war neuroses having a hereditary or acquired neuropathic basis. How far does feeble-mindedness itself count among these supposedly susceptible nervous and mental weaklings? Is a feeble-minded person especially a condition for Shell-shock?

There are rumors of experiments to show that if in an aquarium containing some jelly fish alongside bony fishes, you explode a substance, the jelly fish ride through unscathed whereas the bony fishes are killed by the shock. The jelly fish presumably have too simple an organization to permit them to be killed by the shock of the explosion.

There is something to be said for the idea that in man also the higher and more complex specimens are more susceptible to Shell-shock, that is, to the neuroses of war, than are the lower and more simple combatants. Some statistics indicate that officers, who are in the main of a higher and more complex organization than the private soldiers, are much more susceptible than are private soldiers to the

* If, perchance, some bureaucratic obscurantist shall not have caused their destruction or—just as maleficiently—their non-accessibility, through niggardly appropriations for research!

neuroses of war. Doubtless we shall not be able to verify these statistics until long after the war and, so far as I know, no very inclusive statistics have been presented.

On the whole, I judge from the case history literature²⁷ that the feeble-minded, unless they be of that very high level sometimes called subnormal, are not particularly susceptible to the neuroses. It is obvious that idiots and for the most part, imbeciles, do not get into military service. As for what the English term the feeble-minded or what we in America are now terming morons, it may well be that our draft boards do not always exclude. High French authorities have specifically determined in certain instances that the high-grade feeble-minded would be perfectly suitable for certain branches of the service. There is the case, for example, of a sandwich man of Paris who somehow got into the French army and was being perpetually sent to look for the squad's umbrella and the key to the drill ground, but sang and swung his gun with joy as he went to the front, and apparently did very well there. This man had been a state ward and, as you know, well-trained state wards are frequently exceedingly good at elementary forms of drill.

Then there is another case of an obvious imbecile who was quite without any idea of military rank and often got punished for treating his superiors like his comrades and was the butt of his section, but on the firing-line remained cool, careless of danger—a magnificent example to his comrades—at last surrounded and taken prisoner. Here the story might have ended and the folly of enlisting imbeciles in the army might have seemed perfectly plain, except that our imbecile forthwith escaped from the Germans, swam the Meuse and got back to his regiment!

Here then are cases in which the slight degree of hypophrenia—it seems unwise to give it the opprobrious title “feeble-mindedness”—would have been entirely inconsistent with the development of Shell-shock. Such men are, perhaps, too simple to develop neuroses. On the other hand, it would appear that certain of the slight degrees of hypophrenia, such as we might find in so-called subnormal or stupid persons, would prove capable of “catching Shell-shock” as it were, and then find themselves entirely incapable of rationalizing the

situation. In short, there may be a group of psychic weaklings, just complex enough to fall into the zone of potential neurotics, but just simple enough to render the processes of rationalization (or what one author terms *autognosis*) and of psychotherapy in general entirely unavailing.

After the war we may be confronted with a number of persons with their edges dulled by the war experiences. One has met even brave officers who, after months of furlough, still maintain that they will never get back to their normal will and initiative. Whether these hypoboulie persons have not been reduced to subnormality so as to resemble the slighter degrees of hypophrenia or feeble-mindedness can hardly be determined now. They will form important problems in mental reconstruction, for with the best will in the world, the occupation-therapist with all her technique, may be unable to force or coax the will of such hypoboulies into proper action. Nor will the ordinary environment of home and neighborhood turn the trick properly. Expert social work in adjustment, both of the returned soldier to his environment and of the environment to the returned soldier, may be necessary. I speak of this problem here not because these persons are hypophrenic or feeble-minded in the ordinary sense, but we must constantly bear in mind our experience in the teaching of hypophrenics (both in the schools for the feeble-minded and in the community) when we are facing problems of mental reconstruction.

Aside, too, from the mental edges dulled by war, we must think of persons who have been thrown into a state of what might be termed voluntary feeble-mindedness. A friend of mine has recently suggested that many Americans are in a state of what he termed voluntary feeble-mindedness, never doing quite what was expected of them or quite what they could readily do. The observations upon which my friend based the suggestion were made, not here in Boston, but in the midst of New York, where psychic parasitism is possibly more frequent than with us here! However that may be, it will be important for us after the war to distinguish between the potentialities of the subnormals who have gone through the war with character not specially changed, the men who have been rendered somewhat inferior by their war experience, and the men who are in

some sense voluntarily inadequate. Workers in sanatoria for tuberculosis have long assured us that their cured cases are sometimes hard to re-fit into the work of the community on account of the mental and bodily habits which their sanitarium life has dropped them into. Well, I am afraid that routine military life, aside from its occasional dramatic and heroic episodes, gives one a certain tendency, if not to somatic laziness, then in any event to psychic sloth. Let us therefore bear these principles in mind in our reconstruction efforts, taking as many leaves out of the book of hypophrenia as may be. Doubtless, we shall not have many cases of Shell-shock in the out-and-out sense of hysteria and complex neurasthenia in the feeble-minded of our army, but we must still look for odd reactions on their part, and we must not look for too great skill in the process of *γνώθι σεαυτόν* in these persons whose powers of self-analysis and of autocritique, which are at the outset limited.

SHELL-SHOCK AND EPILEPSY.

The authorities have been somewhat surprised by the number of epileptics which have gotten by the draft boards. The statistics are not yet ripe, but certainly the enlistment of an epileptic is not a rarity. There are some singular instances in the war literature showing how hard it sometimes is to bring out epilepsy. There is the English case, for example, of a man, an epileptic's son, who had himself been epileptic from 11-18, who entered the Expeditionary Force at the outbreak of hostilities, went through the retreat from Mons and through two years of active warfare without having a single epileptic convulsion. In fact, in September, 1916, he was put in charge of eight men on guard duty. Apparently the new responsibilities worried him, and two months later he had become epileptic to the extent of *petit mal*.

Another man who had never been epileptic (though his sisters had been) was wounded four times, was never worried by shell fire, got somewhat depressed after the death of his father and five brothers in the service, but did not become epileptic until finally he was blown up and buried three times in one day, and it was a whole month later when he became epileptic, although treatment by rest and bromides apparently resolved the affair.

Other cases seem to show that war experiences can bring out epilepsy, although in most instances it would appear that there was an epileptic or otherwise neuropathic heredity in these cases.

There is one author, Ballard,²⁸ who has actually propounded a theory of Shell-shock as epileptic, pointing out the occurrence of epilepsy long after the early symptoms of Shell-shock have disappeared.* There does not appear to have been any increase in epileptics as the result of the war, either from the standpoint of Shell-shock or from the standpoint of brain injury, so far as the records of the National Hospital for the Paralyzed and Epileptic in London are able to show.

As in all other instances of mental or nervous disease, when an epileptic returns from the war, whether or no he was potentially or actually an epileptic before the war, his relatives are bound to term him a case of Shell-shock. I am familiar with a case in a hospital in a certain Atlantic port, a case of pronounced and obvious epilepsy. In the wards he is treated as the hero of every occasion. Not only the nurses and attendants, but the other patients and often the physicians can hardly resist thinking of him as somehow a case of Shell-shock. It is a comment upon the status of mental hygiene in general that this self-same epileptic, had there been no war, would have been, as it were, a common or garden epileptic, mute and inglorious on some sunny hill-side.

In passing I may note how many instances in the medico-legal part of the war literature there are of epileptics who come up for courtmartial or for medical examination pending courtmartial. We may suspect that many a case of epileptic fugue has been regarded as a case of desertion. There is the case of an epileptic who left camp one morning and got drunk. Investigation showed that he left camp before anything epileptoid had happened. He developed in his drunkenness a pretty clearly epileptic crisis with great violence, for which he had

* In one instance, fugue and other minor symptoms were later replaced by epilepsy; in another, an epileptic confusion developed eight months after an explosion and in a third, a case of mine-explosion, stammering resolved into mutism and mutism finally to epilepsy. Of course there is a so-called general resemblance among all forms of hyperkinesis or irritative discharge of the nervous system. If we term epileptic all the things that various authors have termed epileptoid, we may be doing nothing more than to say that we believe these cases all subject to epileptic hyperkinesis. In that direction, of course, it has long been said that dipsomania was really a form of epilepsy. Whether Shell-shock is ordinarily subject to recurrence in such wise as to imitate the recurrence of attacks of dipsomania, of manic depressive psychosis or of epilepsy, is, to say the least, doubtful at this time.

a complete loss of memory. The French Council condemned him to five years of labor, not admitting in this instance that responsibility was diminished by reason of the man's being epileptic. In short, from the military point of view, he should, so to say, have known enough not to have gotten drunk, and so have avoided getting his epileptic crisis. Of course the decision was here very close, and a like decision would not always be rendered. To add to the complication of this particular case, the very first epileptoid crisis which caused it to be known that the man fell into the epileptic group was due to Shell-shock, or at least developed immediately after the bursting of a shell nearby. On the whole, however, the relation between epilepsy and Shell-shock is not a close one.

SHELL-SHOCK AND ALCOHOLISM.

A good deal of prime interest surrounding alcoholism has been developed in the war; but on the whole, so far as I can determine from the war case literature, there is little or no direct relation between alcoholism and Shell-shock, despite the fact that in a number of instances alcohol has complicated the issue and very possibly helped in a general demoralization of the victim. However, the alcoholic amnesias and particularly a few instances of the so-called pathological intoxication have exhibited a certain medico-legal interest, recalling what was just said above about the responsibility of a drunken epileptic. Alcohol remains, I should say, pending exact monographic work upon this topic, purely a contributory factor for the war neuroses.

SHELL-SHOCK AND FOCAL BRAIN DISEASE.

In the orderly diagnosis of mental disease, from the standpoint of the major orders or groups, we ordinarily come at this point to the focal brain diseases. In analyzing the neuropsychiatric problem of a so-called Shell-shocker, it is, of course, our bounden duty to exclude syphilis. Even though the percentage of syphilitic victims of Shell-shock is not high, yet these cases promise so much from treatment that they deserve to get their diagnosis as early as possible, and the English workers who have worked most in the syphilitic field insist upon this point.

We next proceed, as above indicated, to the elimination of hypophrenia with all the various

grades of feeble-mindedness. Thirdly, we try to exclude the various forms of epilepsy; and fourthly, the effects of alcohol, drugs and poisons.

In ordinary civilian practice, such as that at the Psychopathic Hospital, the orderly elimination for diagnostic purposes of the great groups of the syphilitic, hypophrenic (feeble-minded), epileptic and alcoholic, leaves us with cases in which there either is or is not important evidence of organic nervous-system disease, such as that shown in cases with heightened intracranial pressure or in cases with asymmetry of reflexes and other forms of parareflexia. In military practice these logical questions of prior elimination of syphilis, feeble-mindedness, epilepsy, and alcoholism must go a-glimmering at first, unless their signs are so obvious as to permit diagnosis by inspection. But the nervous and mental cases almost one and all give rise to the suspicion at least of organic disease, possibly traumatic in origin. Even when a man falls to the ground without a scratch upon his skin, there is some question whether in his fall he has not sustained some slight intracranial hemorrhage which the lumbar puncture fluid might show. Add to this that the signs of hysteria are very often unilateral, and it will readily be conceived how much like an organic case an hysteric in the casualty clearing station may look. Rapid decision may be necessary in order to get immediate effects in psychotherapy a few minutes or hours after the shell explosion, and one may need to choose between applying a possibly unsuccessful psychotherapy forthwith and making a thorough neurological examination. As Babinski has pointed out, making a thorough neurological examination gives opportunity for all sorts of medical suggestion to be conveyed to the patient. It would appear that many an hysterical anesthesia has been given to a patient by the very suggestion of the physician testing sensation. Here one does not refer to malingering in the conscious and designed sense of the term, but to the operation of the genuinely psychopathic, that is to say, hysterical processes.

In the case of head injury, naturally the majority of nerve phenomena will ordinarily be upon the opposite side of the body to the side of the head that is injured. The reverse situation holds for hysterical cases, wherein it would appear that the bursting of a shell, let us say upon the left side of the body, seems to

determine contractures, paralyses and anesthesias to that same left side of the body; now and then complicated cases appear which put the neurologist through his best paces. Such a case is that of a man who was wounded on the left side of the head and promptly developed a *hemiplegia* on the same (*left*) side, *with aphasia*. Now aphasia ought to be the result of a lesion on the left side of the brain in the common run of cases, whereas left-sided hemiplegia ought to be the result of lesion on the right side of the brain. In point of fact, the analyst of this case felt that he was dealing with a direct injury on the left side of the brain, leading to aphasia, and a lesion by *contrecoup* on the right side of the brain, leading to a left-sided hemiplegia.

It is not only at the casualty clearing stations and along the lines of communication that the difficulties in telling Shell-shock in the neurotic sense from traumatic psychosis and the effects of focal brain lesions is found, since the literature amply shows that diagnostic problems remain open for weeks or months in the various institutions of the interior, to which all the belligerents have been forced to send their cases.

A glance at the differential tables that have been developed, for example, by the French neurologists, will show how fine the diagnosis betwixt a hysterical and an organic disease may be, especially when we consider how often there are admixtures of the two. The rule holds for the vast majority of cases that absolute bullet wounds or shrapnel wounds do not produce Shell-shock; and the statistical story is so clear that one might almost think of the wounds as in some sense protective against shock, that is, against Shell-shock, not against traumatic or surgical shock. Nevertheless, by some process whose nature is obscure, the hysteric is apt to pick up some slight wound and, as it were, surround this wound with hysterical anesthesia, hyperesthesia, paralysis or contractures.

The chances are, if we should collect all our civilian cases of railway spine and of industrial accident with traumatic neuroses, we should be able to prove this same strange relation between slight wound in a particular part of the body and the local determination of hysterical symptoms to that region. Of course, the determination follows no known laws of

nerve distribution to skin or muscles, and the effect is apparently a psychopathic or, at all events, a dynamic process without clear relations to the accepted landmarks.

I do not mean to suggest, aside from the hurry of war, that the differential diagnoses here are more difficult than those in civilian practice, but the difficulties are at least as great as those that have faced the civilian practitioner. What needs emphasis is that just because we have concluded that the statistical majority of the cases of so-called Shell-shock belongs in the division of the neuroses, we should *not feel too cock-sure* that a given case of *alleged Shell-shock* appearing in the war zone or behind it is *necessarily* a case of *neurosis*.

After the early "period of election" for psychotherapy in the war zone has passed, there can be no excuse except general war conditions for not according to every case of alleged Shell-shock a complete neuropsychiatric examination, having due regard to the ideas of Babinski concerning medical suggestion of new increments and appendices to the original hysteria, developed in battle or shortly thereafter.

I have, however, been able to find in the literature good instances of puzzling diagnoses in which such conditions are in evidence as acute meningitis of various forms, hydrophobia, tetanus, and the like.

Especially in the diagnosis against Shell-shock hysterics we may need to think of the abnormal forms of tetanus, to which an entire book in the *Collection Horizon* has been devoted. The differential diagnostic tables here draw up distinctions between local tetanus, involving, let us say, the contracture of one arm, as against a hysterical monoplegia.

SHELL-SHOCK AND BODILY DISEASE.

In civilian psychopathic hospital practice, if a case is not syphilitic, not feeble-minded, not epileptic, not alcoholic, and without signs of intracranial pressure or disorder of reflexes, then we as specialists must consider whether the disease in question is not due to some form of bodily disorder outside the nervous system; for example, we think in practice of infectious psychoses, of exhaustive states such as the puerperium, of toxic states such as may be found in cardiorenal cases, and of glandular phenomena such as we are familiar with in the thyroid disorders.

Under the war conditions, it might be thought that these somatic disorders yielding the so-called symptomatic mental diseases would be frequently found.

Aside from these rarities in puzzling diagnosis, we find more commonly in the literature evidence that the soldier's heart, the so-called "D.A.H.," or disordered action of the heart, of the English army reports. This soldier's heart is sometimes associated with hyperthyroidism, and sometimes hyperthyroidism is found alone, with symptoms suggesting those of a sort of diffuse Shell-shock.

One author claims rapid cures of hyperthyroidism by the relatively simple process of hypnosis. Perhaps this is not too unlikely in view of the still obscure relations between mind and hormones. A little more surprising, perhaps, is the assertion met with that psoriasis is sometimes a Shell-shock phenomenon.

The literature clearly shows, however, that, as in most special problems, the internist is still in demand. I will recall to you again how one internist was misled on the stand into stating that he was a "general specialist." This is what we would all need to be, were we to solve the problems of Shell-shock in the time allotted to us by the war.

SHELL-SHOCK AND OLD AGE.

For completeness' sake, I mention here the old-age diseases which the specialist in psychiatry has to consider after he has eliminated the diseases of brain and body, that the neurologist and internist cover.

The relation of old age to Shell-shock is just now a distant one. Are the Shell-shockers, especially the mild instances of men coming back with their so-called "nerves," with their dulled emotional edge or their equally abnormal over-sensitivity, ever going to get over these states and pass into normal activities once more? Are their lives to be shortened through their experiences? We who see the Grand Army veterans parading are apt to comment on their fine figures and the immense powers of resistance they must have shown. They were in a sense picked men both in war time and since that time. What now shall be said concerning the more serious experiences of the present war? Are we producing a group of potential neurotics, liable to be thrown into hysteria, neurasthenia, or psychasthenia by the accidents and adventures of post-bellum life, or

are these men ever to get back to so normal a terrace that they can be regarded as even potential neurotics? Will they not all of them lose what the physicist calls positional energy, and remain a terrace lower, neuropotentially speaking, than normal men?

I get the impression from some returned soldiers that they believe themselves forever somewhat broken men, but I am inclined to think that the psychology and physiology of their convalescence have not been sufficiently worked out to allow us to agree with them forthwith. For the present we should concede to Nature her *vim medicatricem* and consider that in a period of not over two years after the war experience is over these men should get back to their normal emotionality and their normal equipment of will and character. But I am bound to say that this conclusion depends more upon hope than upon proofs, and at best hangs upon the suggestions from convalescents that we obtained in the acute diseases of civilian life, which very possibly bear no sort of relation to the war effects. What these war effects in general really are is doubtful. There seems to be no particular augmentation in cases of mental diseases of the physical exhaustion type.

We are as a rule able, it would appear, to assign the exhaustive psychoses that do occasionally appear, to other and more specific causes than the fatigue and strain of the war. Now and then a case is reported as prematurely old-looking; but on the whole there is no special evidence that life is to be, in general, shortened, or in later years made at all more difficult by the war experience unless there has been some specific disorder leading to incapacity in the war.

SHELL-SHOCK AND SCHIZOPHRENIA (DEMENTIA PRECOX).

That the causes of dementia precox, still unknown as they are, lodge more in the interior of the body or in special individual reactions of the victim's mind, seems to be shown by the phenomena of this war, since there seems to be no great number of dementia precox cases therein produced. To be sure, some schizophrenic subjects do get into the service, and sometimes their delusions and hallucinations get their content and coloring from the war. Thus a Russian, wounded in the army, developed delusions concerning currents running from his arm to the German lines and felt

that he was, so to say, the Jonah of the Russian front, as he could determine shell fire to the spot where he was through the unfortunate currents from his arm.

Now and then a case shows a scientifically beautiful admixture of ordinary dementia precox phenomena with the effects of shell wound or shock. A picturesque case from the standpoint of German psychiatric diagnosis is one of a soldier who boxed the ear of a kindly Sister who tried to steer him from a room where the examination of another patient, a woman, was going on. On the whole, the eminent German psychiatrist who examined the case felt that he was really one of psychopathic constitution, as he had shown somewhat similar irascibility on a slight occasion before. However, much to the astonishment of all, the patient developed further symptoms. His ego got terribly swollen. At last he was fain to utter a denunciation of the entire *Junkertum* and of the Kaiser: he said in fact that he was an Inhabitant of the World and not of Prussia merely. Over here we allow such persons to edit newspapers and write books with impunity, but the eminent German psychiatrist, before mentioned, was constrained to alter his diagnosis of this cosmopolite from psychopathic constitution to dementia precox!

SHELL-SHOCK AND CYCLOTHYMIA.

On account of the somewhat close resemblance between the phenomenon of manic-depressive psychosis and what we ordinarily feel ourselves—a logical situation reflecting merely the fact that the phenomena of over activity (mania) and of under-activity (depression) are merely quantitative variations from the normal—it might be supposed that the war life and its shock and strain would start up the cyclothymias in some numbers. Why should not a shell explosion start up a mania or throw a man into a depression? In point of fact the literature somehow does not agree with this presupposition.

Some years ago in Massachusetts a brief investigation was made of the assigned causes of the successive attacks in a great number of cyclothymic (manic-depressive) cases, and it was found that each successive attack progressively had less of the physical in the previous history. Something like 45% of all the first attacks had a pretty obvious cause in the soma, such as a kidney disease, a heart disease,

a puerperal condition and the like, but the second attacks failed to show even 20% of such obvious somatic causes, and the third attacks even less than 10%, and so on.

Now war conditions and even the shell explosions themselves have apparently not set up any such conditions as those of mania or of depression. Most of the instances of cyclothymia are instances of men who are cyclothymic before they enter the army. These experiences, when after the war we can sift them all out, may allow us to form better ideas as to the etiology of many of the psychoses, and the great war may thus prove a gigantic experimental reagent which will aid in solving some of the major problems of mental hygiene.

I have pictured the practical situation in which the neuroses of the war find themselves—a situation bristling with diagnostic difficulties. The great proposition deducible therefrom is,

The diagnostic problem in Shell-shock is the diagnostic problem of neuropsychiatry at large.

The neuroses of war have this in common with the neuroses of peace—that they need to be distinguished from all other nervous and mental diseases. One cannot be a specialist in Shell-shock unless one is a neuropsychiatric specialist; even the neuropsychiatrist has much to learn from the internist, the orthopedist, the neurosurgeon, as well as from the psychologist.

But, however wide the diagnostic field for Shell-shock, the therapeutic field is wider still. For the neuropsychiatric reconstructionist has to face the peculiarities of the military status of his ward, the difficulties of demobilization into civilian life (a canal system with very precise technic for the opening and closing of locks), the choice and timing of the proper measures of bedside occupation, of occupation therapy in a broader sense, of prevocational and vocational training—the whole complicated by the character changes that may have set in to bowl over all one's preconceptions. The nub of the matter, after the era of the *manière forte*, the brusque psychotherapy, the rough jarring of the man back into approximate normality is, perhaps, this possibility of subtle character changes defying possibly anybody's analysis, but stimulating us all to our best endeavor, whether we are physicians, psychologists, occupation-workers, social workers, or nurses. Now that all sorts of reconstruction programs are in the air, each claiming its share, or more than its share, of attention, let us not

forget that no one can stake out in any small plot the measures of refitting, readjustment, re-adaptation, rehabilitation—all these terms with slightly differing denotation have been used—especially when we take into account that not only must the patient be refitted to his entourage, but also not seldom the entourage to its returned Shell-shoek.

It is proper to place these general considerations first because the slow, patient, prosaic measures of reëducation are apt to be forgotten in our enthusiasm for the lightning-like cures of the hypnotic, the psycho-electric, the pseudo-operative, and other psychotherapeutic forms. Psychotherapy in all its forms has come into its own in Shell-shoek. Miracles or their equivalents are daily wrought by men who are not prophets. Lourdes and Christian Science have their unassuming rivals. Let us remember, however, that even Lourdes and Christian Science never solved 100% of the problems placed before them, even though the votaries have the best will in the world to be cured. If the will itself is disordered, what can be done save investigate? And the *mauvaise volonté* is by no means absent from some of our prospective patients; witness one man, a Frenchman, who so resented being cured by *torpillage*, i.e., by the electric brush, that he carried his case against Clovis Vincent, who cured him of his hysteria, clear to the Academy! And, even after we have cured our cases by these modern miracles, let us not be too proud of ourselves! One soldier sent back to Australia, hysterically mute for months, got his voice back after killing a snake,—a peculiar instance of occupation-therapy, not enumerated in courses on reconstruction. And remember the man who jumped the wall and got drunk, breaking back into the hospital to show his doctor how his refractory voice had at last come back. Thus there are cures and cures (even a newspaper cure of mutism by a moving picture vision of the antics of Charlie Chaplin), and spontaneous non-medical cures as well as medical ones, and slow cures due to *vis medicatrix*, as well as to shrewd reëducation measures.

Taken by and large, what problem has more threads to more sciences and arts than has Shell-shoek? The very name itself has within it a good deal of the essence of mob-psychology: in another age we should have had the same mob fear of it that now invests such things as

insanity, syphilis, cancer, leprosy. But a speedy application of the principles of neurological art, the legacy of Charcot, has nipped that articular mob fear in the bud. Yet the magic of the slang term itself, with all its imbedded pomp and circumstance of the war, making Shell-shoek a veritable microcosm of the great war, symbolically speaking, has us all under its spell, whether layman, physicians, or philosophers. Does one sometimes die of Shell-shoek, just because the cells of the vago-aecessorius nucleus lose a little of their substance, as Mott relates? Very well, where does this carry one except into the deepest recesses of physical chemistry, into what Peirce, years ago, particularly termed the liquefaction of the life-slime or protoplasm? At this point the structural fades into the functional, or the functional into the structural, it matters not which. Take Shell-shoek from the farthest outside, as mob-psychology, or from the farthest inside, as a problem of kinetic energy, there is little but maximal interest anywhere. I had the curiosity to draw up a list of the specialist types of worker whom I personally knew to be engrossed in some aspect of this problem; there were no less than twenty-five. I forbear to list them here.

Where does this problem systematically belong? Medicine claims it by a certain right of priority in its diagnosis and a good share in its successful treatment. But in another sense medicine has but a slender claim to the wealth of its content. Babinski by means of it seems to have split the dynamic into two parts. As to the high psychic functions, we had thought of them as split in hysteria, in dissociation of personality. And we had roughly distinguished these conditions as *psychopathic* from conditions we called *neuropathic*, regarding the latter neuropathic disorders as on the model of the effects of cutting off or destroying certain necessary neurons. However clear or unclear we were as to the nature of the neuropathic, it does not here matter. Babinski's point is that there is another kind of dynamic disease that operates, not after the manner of hysteria, but after a manner reminding one of the forgotten "reflex" disorders of Charcot—disorders that fitted the textbooks so poorly that the textbooks dropped them out. In short, what you might call *the dynamopathic or functional in nervous disease has been shown to fall into two parts—a psychopathic fraction and a non-psychopathic*

fraction. Babinski calls this non-psychopathic fraction *physiopathic* or reflex. And these reflex or physiopathic disorders have a different order of curability than have the hysterical or psychopathic disorders. By what simple device did Babinski prove this? By chloroforming the patient. Under chloroform, when all the other reflexes were stilled, Babinski could bring out, in relief as it were, certain reflexes, or even hypertonus, that were in the waking life wholly concealed,—yet at the same time consciousness, in the usual sense of that term, had vanished. Accordingly, the proof of a new type of functional disease, at times concealed by the overlay of higher neurones, was now plain. Does not this offer new leads of the greatest value in that most intricate of fields, psychopathology? Is not the model here offered of diseased *nervous functions*, *non-psychic* in nature (in the ordinary sense of psychic) *but of almost equally complex nature*? I confess that, to me at least, the world seemed potentially a great deal richer when this suggestion of the physiopathic—i.e., non-psychopathic and non-neuropathic (in the sense of neuronic loss)—came across the Atlantic. Another little nick in that frozen block we have been trying so long to exorcise, viz., that indefinable Archeus, Incubus, or Succubus (words fail here), the so-called Unconscious!

Life and, for that matter, the world itself is, according to one account, nothing but a chapter of accidents. Of these, Shell-shock is not the least terrible. Thank Heaven—a little light on life and mind and their laws can be thrown by this fortuity, for which the Kaiser and his like be cursed into eternity,—unless they themselves are in some sense gigantic errors of an irresponsible fate. God help us to make it so that they and their ruins shall not be the last in the chapter.

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Original Articles.

ORGANIZATION IN HOSPITAL DIETETICS.

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DIETETICS in its broadest sense includes so much physiology, chemistry, and clinical medicine, as well as theoretical and practical cookery, that it is too big a subject for any one individual to cover.

The *medical* part of dietetics is as much a part of therapeutics as drug treatment, and can be administered only by the physician. There is, for example, no heart disease diet or nephritic diet that can be made out in the form of a list available for the layman, any more than there is a heart disease or a nephritic drug

list that can be used in the same way. There are certain general principles of dietetic treatment in each disease, or, better, certain general principles of treatment, of which the dietetic treatment is an inseparable part; but with any individual patient the diet and the drugs given depend on the condition as a whole in that particular patient, and may change with change in the clinical condition. In heart disease, for example, the general rule is to restrict the diet more or less—just as we restrict muscular activity—in an endeavor to relieve the heart of excessive metabolic work. But in weak, undernourished, anemic patients with, perhaps, a subacute infection, quite different principles may prevail; and the occurrence of fermentation and other gastric and intestinal disturbances may call for a high degree of individualization in the diet from day to day. It is obvious that we cannot expect either the dietitian or the chemist to be responsible for the medical part of dietetics any more than we can expect the druggist to be responsible for the drug treatment.

The *chemical and physiological part* of nutrition has grown so rapidly during the last decade that this, likewise, has become a field by itself with a literature so large that only the specialist can cover it. It would be unreasonable to expect either the dietitian or the physician to be an expert in this branch of the subject.

There still remains a great amount of information relating to the preparation of food-stuffs from the raw materials which comes within the scope of dietetics in its narrower sense. The dietitian proper should be able to take diets prescribed in very general terms—so many calories; so much protein, carbohydrate, and fat; a diet poor in salt; a diet containing 50 grams carbohydrate, etc.—and with these as a basis prepare satisfactory menus. In metabolism studies, where it is necessary to prescribe very strict diets prepared from a few substances of known composition, the strictly *dietetic part* may be very difficult. In nutritional studies on the lower animals this problem does not appear at all, but in studies of human nutrition successful results may depend to a considerable extent on how well this part of the work is done.

The three subdivisions of dietetics cannot be accurately delimited; they overlap. It is

sometimes necessary in practice for the physician and dietitian to divide the chemistry of nutrition between them, and so cover the whole subject. But the three subdivisions should be recognized, and, when possible, each part of the work should be done by the proper specialist.

At the Robert Brigham Hospital, where we have given considerable attention to this subject, our method at present is as follows: First, the physician prescribes to the dietitian—with some explanation of its purpose—the basis for a preliminary dietary. The dietitian, after studying this list, and after consulting the patient's taste, may suggest slight additions, substitutions, and other alterations, which will permit the preparation of an attractive menu. The final basis for the dietary is prescribed after the physician has considered these suggestions, and the dietitian then makes out a set of daily menus. It may be necessary to modify the menu slightly further, especially the quantities given, after trial for a day or two.

EXAMPLES.

Diet I. The following basis for a 24-hour diet was prescribed:

3 eggs—which may be replaced in part by cheese, one ounce of cheese for one egg.
800 cc. milk.
600 grams potato—which may be replaced in part by bread, spaghetti, or rice in the following proportions: 20 grams potato = 8 grams bread = 5 grams rice.
56 grams butter.

In addition, once a day, a very little lettuce, or tomato, and a very little fresh or preserved fruit.

The dietitian suggested that the addition of a little sugar, flour, vinegar, and vanilla for cooking purposes, the substitution of olive oil for part of the butter, and the addition of flavor of vegetables for making soup (certain other changes which were suggested were not acceptable) would greatly improve the possibilities for menu making.

The second day the basis was raised to 4 eggs, 1000 cc. milk, 700 grams potato, 56 grams butter; and the third day to 4 eggs, 1200 cc. milk, 800 grams potato and 70 grams butter, and here it was kept.

The menu for the next six days follows.

	Eggs	CHEESE	MILK	POTATO	RICE SPAGHETTI MACARONI	BREAD	BUTTER
		oz.	c.c.	gm.	gm.	gm.	gm.
OCT. 17							
<i>Breakfast</i>							
Scrambled egg.	1		20				7
Baked potato ..				100			
Bread, butter, milk			225			48	21
<i>Dinner</i>							
Soup (Cr. Spin- ach)			200				
Delmonico potato	1	80	200				7
Bread, butter, milk						48	14
Celery							
Baked custard.	1		75				
<i>Supper</i>							
Baked egg in rice nest	1			25			7
Bread, butter, milk			200			64	14
Ice cream			200				
Total	3	1	1200	300	25	160	70

	Eggs	CHEESE	MILK	POTATO	RICE SPAGHETTI MACARONI	BREAD	BUTTER
		oz.	c.c.	gm.	gm.	gm.	gm.
OCT. 18							
<i>Breakfast</i>							
Poached egg on toast	1					24	11.7
O'Brien potato.			100	100			7
Toast, milk, butter			225			24	14
<i>Dinner</i>							
Baked macaroni c cheese	1	100			40†		
Tomato salad c vinegar and oil							2*
Snow pudding.	1		250				
Bread, butter, milk			200			48	14
<i>Supper</i>							
Goldenrod egg	1		100				7
Baked potato ..				200			
Bread, butter, milk			225			40	14
Orange							
Total	3	1	1200	300	40	136	67.7† 2*

* Oil.

† Butter.

‡ Macaroni.

	Eggs	MILK	POTATO	SPAGHETTI	BREAD	BUTTER
		oz.	c.c.	gm.	gm.	gm.
OCT. 19						
<i>Breakfast</i>						
Baked potato ..			100			
Toast, butter, milk			200		48	14
Soft cooked egg	1					
<i>Dinner</i>						
Bread, butter, milk			225		48	14
Escaloped spa- ghetti c egg	1	55		30		11.7
Lettuce (dr's'd)						2*
Ice cream	1	175				
<i>Supper</i>						
Soup			200			
Baked stuffed potato	¼	20	200			14
Bread, butter, milk		225			56	14
Baked custard	¾	100				
Grape fruit ...						
Total	4	1200	300	30	152	67.7† 2*

* Oil.

† Butter.

	Eggs	MILK	POTATO	SPAGHETTI	BREAD	BUTTER
		oz.	c.c.	gm.	gm.	gm.
OCT. 20						
<i>Breakfast</i>						
Toast, butter milk		200			48	12
Cream toast ..		125			24	7
Omelet	1					
<i>Dinner</i>						
Soup (aspara- gus)		200				7
Potato salad ..			200			2*
Baked stuffed egg	1	75				7
Bread, butter, milk		200			48	12
Lemon soufflé c foamy sauce	¾ ¼					
<i>Supper</i>						
Cream potato soup		200	100		32	8.7
Crontons						
Toast, butter, milk		200			24	14
Dropped egg on toast	1				24	
Cut fruit						
Total	4	1200	300		200	67.7† 2*

* Oil.

† Butter.

	Eggs	CHEESE	MILK	POTATO	RICE MACARONI	BREAD	BUTTER
	oz.	c.c.	gm.	gm.	gm.	gm.	
OCT. 21							
<i>Breakfast</i>							
Toast, butter, milk			200		48	14	
Grapefruit							
Scrambled egg, 1		20					7
<i>Dinner</i>							
Soup, toast ...		200			24	7	
Baked potato ..			200				
Egg & tomato salad	1						2*
Bread, butter, milk		200			24	11.7	
Ice cream 1		160					
<i>Supper</i>							
Soup		200				7	
Potato soufflé . 1/2		20	200			7	
Bread, butter, milk		200			64	14	
Orange fluff .. 1/2							
Total	4		1200	400	160	67.7†	2*

* Oil.

† Butter.

	Eggs	CHEESE	MILK	POTATO	RICE MACARONI	BREAD	BUTTER
	oz.	c.c.	gm.	gm.	gm.	gm.	
OCT. 22							
<i>Breakfast</i>							
Fruit							
Poached egg .. 1							
Toast, butter, milk		200			48	14	
<i>Dinner</i>							
Soup, buttered toast points		200			24	7	
Browned mash- ed potato ...		20	200			14	
Bread, butter, milk		200			24	7	
Cheese salad .. 1		10				2†	2*
Rice custard 1		100		14			
<i>Supper</i>							
Soup, toast sticks		170			25.6	4.7	
Escal. macaroni & tomato				30		7	
Bread pudding 1/2		75			24	7	
& foamy sauce 1/2		25					
Bread, butter, milk		200			24	7	
Total	3	1	1200	200	44	169.6	69.7†

* Oil.

† Butter.

Diet II. Basis for 24 hours after consulta-
tion with dietitian and patient:

3 eggs;
26 ounces milk
100 grams bread
40 grams butter
6 grams oil
3, ounce cereal
4 ounces cream

3 ounces potato
3/4 ounce rice or spaghetti
1 1/2 ounce cheese

In addition, small quantities of vegetables (ex-
cept peas, beans) and fruit; and small
amounts of flour, vinegar, salt, pepper, and
sugar for cooking purposes.

	Eggs	MILK	BREAD	BUTTER, OIL	CEREAL	CREAM	POTATO	RICE, SPAGHETTI	CHEESE
	oz.	gm.	gm.	gm.	dry oz.	raw oz.	dry oz.	dry oz.	oz.
Nov. 2.									
<i>Breakfast</i>									
Farina & cream					3/4	2			
Soft cooked egg 1									
Toast, butter, milk		6	50	12					
Peach									
<i>Dinner</i>									
Cream soup		6		4					
Baked potato ...				3			3		
Squash				3					
Apple and celery salad				3*					
Bread, butter, milk		6	25	6					
Ice cream	1					2			
<i>Supper</i>									
Baked spaghetti & cheese		2		6				3/4	1/2
Egg salad	1			3*					
Bread, butter, milk		6	25	6					
Pear sauce									
Total	3	26	100	40†	3/4	4	3	3/4	1/2

* Oil.

† Butter.

	Eggs	MILK	BREAD	BUTTER, OIL	CEREAL	CREAM	POTATO	RICE, SPAGHETTI	CHEESE
	oz.	gm.	gm.	gm.	oz.	oz.	oz.	oz.	oz.
Nov. 3.									
<i>Breakfast</i>									
Grapes									
Farina & cream					3/4	2			
Scrambled eggs 1		1 1/2		4					
Toast, butter, milk		6	50	12					
<i>Dinner</i>									
Brown mashed potato & cheese		1		3			3		1/2
Bread, butter, milk		5	25	6					
Sprouts				3					
Spinach and egg salad	1/2			3*					
Baked custard.. 1/2		3							
<i>Supper</i>									
Cream soup		4 1/2		3					
Bread, butter, milk		5	25	6					
Fruit salad				3*					
Rice pudding & cream and jelly 1				3		2		3/4	
Total	3	26	100	40†	3/4	4	3	3/4	1/2

* Oil.

† Butter.

	Eggs	Milk	Bread	Butter, Oil	Cereal	Cream	Potato	Rice, Spaghetti	Cheese
	oz.	gm.	gm.	oz.	oz.	oz.	oz.	oz.	oz.
Nov. 4.									
<i>Breakfast</i>									
Orange									
Farina c cream..					3 $\frac{1}{4}$	2			
Soft cooked egg	1								
Bread, butter, milk		6	50	12					
<i>Dinner</i>									
Cream soup		4 $\frac{1}{2}$		3					
Toast sticks			25	6					
Baked stuffed potatoes	$\frac{1}{8}$	$\frac{1}{2}$		6			3		
Lettuce and pi- mento salad ..				3*					
Boiled onions ..				5					
Milk		6							
Banana custard c meringue ..	$\frac{3}{8}$	1				2			
<i>Supper</i>									
Escal. spaghetti c egg	1	2		3			$\frac{3}{4}$		
Pineapple, cheese, pepper salad ..				3*				$\frac{1}{2}$	
Bread, butter, milk		6	25	5					
Blackberries ...									
Total	3	26	100	40 $\frac{1}{6}$ *	$\frac{3}{4}$	4	3	$\frac{3}{4}$	$\frac{1}{2}$

* Oil.

† Butter.

	Eggs	Milk	Bread	Butter, Oil	Cereal	Cream	Potato	Rice, Spaghetti	Cheese
	oz.	gm.	gm.	oz.	oz.	oz.	oz.	oz.	oz.
Nov. 6.									
<i>Breakfast</i>									
Malaga grapes									
Corn flakes c									
cream								$\frac{1}{4}$	2
Scrambled eggs.	1	11 $\frac{1}{2}$		3					
Toast, bread, milk		6	25	6					
<i>Dinner</i>									
Escal. potato ...		2		6				3	
Spanish omelet c	1			3					
Sauce { Tomato Onion Celery Olives									
Spinach salad ..				3*					
Bread, butter, milk		7	37	9					
Sherbet								2	
<i>Supper</i>									
Cream cheese sauce on toast		3		3					$\frac{1}{2}$
Escal. tomato c spaghetti				3				$\frac{3}{4}$	
Devilled egg ...	1			3*					
Bread, butter, milk		6 $\frac{1}{2}$	38	7					
Fruit sauce									
Total	3	26	100	40 $\frac{1}{6}$ *	$\frac{1}{4}$	4	3	$\frac{3}{4}$	$\frac{1}{2}$

* Oil.

† Butter.

By separating the strictly dietetic part, and concentrating expert attention on this part of the problem it becomes possible to administer a diet of as strict and constant a composition from day to day as desirable, and at the same time to furnish the patient with a palatable and attractive menu.

The constituents of the diet given in the examples are a few homogenous substances of nearly constant composition, so that the intake in protein, carbohydrate, fats and calories can be fairly accurately calculated from food composition tables. In the two sample diets given, the intake and outgo of nitrogen very nearly balance.

NITROGEN BALANCE OF DIETS I AND II.

	DIET I.	DIET II.
Intake per day (calculated)	14.00	10.2
Outgo (by analysis)		
1	13.64	9.7
2	14.03	9.6
3	15.30	10.0
4	14.34	9.5
5	13.89	10.6
6	14.36	9.7
Average outgo	14.26	9.9

The importance of the psychical and esthetic side of eating is perfectly well recognized, and the healthy individual pays as much attention to menu-making as he can afford. But

	Eggs	Milk	Bread	Butter, Oil	Cereal	Cream	Potato	Rice, Spaghetti	Cheese
	oz.	gm.	gm.	oz.	oz.	oz.	oz.	oz.	oz.
Nov. 5.									
<i>Breakfast</i>									
$\frac{1}{2}$ Grape fruit .									
Cereal c cream..				3	$\frac{3}{4}$	2			
Omelet	1								
Bread, butter, milk		6	50	12					
<i>Dinner</i>									
Cream soup		5		3					
Boiled rice							$\frac{3}{4}$		
Buttered beets .				3					
Cheese and nut salad				3*					$\frac{1}{2}$
Bread, butter, milk		6	12	6					
Ice cream	1					2			
<i>Supper</i>									
Shirred eggs ...	1	2	13	3					
Baked potato ..							3		
Green salad				3*					
Bread, butter, milk		7	25	10					
Baked apple ...									
Total	3	26	100	40 $\frac{1}{6}$ *	$\frac{3}{4}$	4	3	$\frac{3}{4}$	$\frac{1}{2}$

* Oil.

† Butter.

an invalid diet presents difficulties. The unscientific cook knows only hard and fast recipes, and finds it almost impossible to alter them to satisfy special nutritional requirements. And, consequently, going on an invalid diet or taking a restricted diet for scientific studies is generally looked upon as necessarily a hardship*; the invalid takes his calories, proteins, carbohydrates and fats as cheerlessly as he takes the rest of his medicine.† With the aid of the trained dietitian, who understands the principles underlying cooking and who is able to take unusual or limited combinations of food stuffs and turn them into palatable dishes,‡ all this is changing, and nutritional and metabolic studies are thereby greatly facilitated.

In some of our metabolic studies and dietetic treatments it has been necessary to prescribe diets whose basis appears very limited in variety, sometimes to spoiled and wealthy patients who wanted to be cured without inconvenience, sometimes to poor and ignorant patients who had little apparent understanding of what was being done for them. Yet I have a distinct impression that changing from house diet to one of our restricted diets has generally been looked upon, not as a hardship, but as a treat; the restriction in diet has apparently been less in evidence than the special attention the patient receives.

At the present time, when dietaries must be prepared on a large scale for troops, the direct application of the foregoing emphasis on specialization in the different parts of dietetics is obvious.

A NOTE ON EXPERIMENTAL SCURVY IN THE GUINEA PIG.

BY W. C. RAPPLEYE, M.D., FOXBORO, MASS.,
Pathologist, Foxboro State Hospital.

MUCH research has been done during the last few years upon the so-called deficiency diseases, resulting in the development of several interesting and significant features. McCollom and Pitz¹ have reported comprehensive studies

made upon experimental scurvy in the guinea pig, and have come to the conclusion that this disease is due to retention of feces in the cecum, which organ is unusually large and delicate in this species. The retention results from a diet which does not possess such physical properties as will lead to the formation of bulky, easily eliminable feces. The pasty feces resulting from such a diet are retained in the delicate cecum, putrefaction ensues with injury to the intestinal wall, absorption of toxins and bacteria may take place, resulting in the clinical features of scurvy.

The proof of this assumption is found when at post-mortem examination done on pigs dying from the disease, the cecum is found distended with putrefying feces, the upper intestinal tract and lower colon are usually empty. And, in addition, administration of laxatives to animals soon after the onset of symptoms of scurvy greatly benefits the animals, and administration throughout the experimental period either prevents or delays development of the disease.

The present note reports studies of a similar nature and embraces a further feature, as seen in the experiments done here. A number of pigs were kept on a diet of oats and milk, and the majority of them developed evidences of the disease in four to six weeks. At autopsy of animals dying of the scurvy so produced, the cecum of each animal was found distended with pale, pasty feces, and the extremities showed the usual signs of scurvy. Other animals were placed on a similar diet and after the development of the disease, were given liquid petrolatum or phenolphthalein, with undoubted improvement in the signs of scurvy. In no case, however, was it possible to restore normal health to the animals, though the small number of pigs so treated prevents attaching any significance to the adverse results. And in all probability the administration was begun at too late a stage in the disease to reasonably expect recovery. That there was improvement, however, was evident.

Knowing that the disease may develop on a diet which one might expect would yield bulky feces (such as oats and dry cabbage), a larger group of animals was placed on a diet of oats and hay, and these animals developed scurvy in from four to six weeks, as expected. Autopsies done on animals dying from scurvy

* This lack of variety in regimes will be apparent to anyone who consults the examples of hospital diet lists given in the back of Friedenwald and Rührh's "Diet in Health and Disease."

† All that is said on this whole subject by one of the better recent books on dietetics is: "The form in which food is supplied is of no small consequence. It must be pleasant to the taste and smell." And this is typical of the way this subject is neglected.

‡ This subject of the general principles underlying food preparation is still very little developed. None of the text-books on dietetics treat it fully enough.

developed on this diet showed well-formed feces in the lower colon, and firm but not necessarily impacted feces in the cecum. The gums, extremities and condition of nutrition were, to all appearances, similar to the conditions found in animals autopsied after fatal results on the diet of oats and milk. The feces were dark colored, and the amount of putrefaction was much less than that found in animals which had been on the diet yielding feces of less bulk. The amount of distention was also much less; the appearance of the cecum, colon and ileum was not especially abnormal. The consistence of the stools altered but little during the period of observation. Administration of laxatives after the onset of signs of scurvy benefited these animals also.

It is not evident why, if scurvy in the guinea pig is due primarily to impaction of feces in the delicate cecum, the pigs on a diet of oats and hay should develop the disease, when the degree of impaction is at least much less than that seen in animals on a diet yielding pasty feces, and the character of the feces not especially abnormal. It is obvious that the poorly balanced diet leads to malnutrition, and it may be that absorption of toxins and bacteria from the intestinal tract may be attributed more directly to that factor, which probably involves the intestinal mucosa quite as much as other tissues. However, this note does not purport to be a discussion of the etiology of scurvy.

The presumption that a certain degree of the inspissation of the feces is due to a late or terminal feature of the disease seems to be borne out by the fact that the feces of animals killed before the very last stage of the disease are less abnormal than those found in animals at death. During the last stage of the disease, the animals are unable to move about and to secure water, and it is possible that a certain, though probably a small, degree of the fecal condition is due to this factor.

Blood cultures made on animals dying from or killed during the study were uniformly sterile. The histo-bacteriological studies of the tissues have not been done as yet.

It is of interest to note that a group of rabbits placed on the same diet of oats and hay showed no symptoms, save a loss of flesh, after four and a half months. One side of their pen was the basement wall, which had been whitewashed and the rabbits had eaten off the

whitewash as high as they could reach. The rabbits in four other pens similarly arranged, and which were on a general diet, did not do this. Whether the calcium in the whitewash had anything to do with the prevention of scurvy or malnutrition was not determined.

SUMMARY.

Scurvy can be produced in guinea pigs on a diet which yields bulky feces, such as oats and hay. Autopsies on animals dying as a result of the disease which has developed on this diet show the usual findings seen in this disease and, in addition, a condition of the intestinal tract not far removed from normal. This is in contrast to the findings of an empty lower colon, impacted cecum, and pasty, putrefying feces, as seen in scurvy produced by a diet of oats and milk, and which features have recently been emphasized by McCollum and Pitz in their discussion of "The Vitamine Hypothesis and Deficiency Diseases" as the essential causative factor in this disease.

Blood cultures of animals with scurvy yielded uniformly negative results.

REFERENCES.

- ¹ McCollum, E. V., and Pitz, W.: Jour. Biol. Chem., 1917, Vol. xxxi, No. 1, 229-253.

Clinical Department.

INTRAPARTUM RUPTURE OF UTERUS AND BLADDER: RECOVERY. SUBSEQUENT CLOSURE OF VESICAL FISTULA.

BY GEORGE T. TYLER, JR., M.D., GREENVILLE, S. C.

MRS. A. S. B., aged 35; ii-para. The previous history was unimportant except that the labors were difficult—one instrumental. She was seen by her physician for the first time Nov. 18, 1917, while in labor (the third). He had been with her about an hour, had used no pituitrin or other uterine stimulant, when the pains, which were vigorous, suddenly ceased. On examination, the head, previously on the perineum, could not be felt. A diagnosis of ruptured uterus was made, and the patient was sent to the hospital for immediate operation.

Under ether she was catheterized, but only a few drops of blood were obtained. The abdomen was opened, the dead child removed with much blood. The uterus was ruptured throughout the length of the cervix and the lower body, just to the left of the median line. The

bladder was included in the tear. A supra-vaginal hysterectomy was done. After the uterus had been amputated, the patient was given intravenous salt solution as her condition was desperate. The wound was then closed with drainage, and the patient returned to bed. She responded to stimulants, and in a few days was out of danger.

Incontinence of urine, of course, resulted. Cystoscopy eight days after operation revealed a transverse tear behind the inter-ureteral ridge, about 5x2 cm. The urine escaped through the torn cervix, the anterior lips of which were widely separated. It was planned to close the fistula on the tenth day, but the patient developed an adynamic ileus, which delayed operation for a week.

Through a suprapubic incision the bladder was opened. The fistula was closed without tension on the right; but as the left side was approached it was found necessary to divide the bladder down to the tear, for the relief of tension. The wound was closed with drainage to the bladder, and a retention catheter placed in the urethra. There was no leakage until the seventh day, when urine again escaped through the vagina. Examination two days later showed that the sutures on the left side near the ureter had broken down. Silk stitches, used in ligating the uterine arteries at the former operation, could be seen through the opening in the bladder. The patient could prevent continuous leaking by lying on her abdomen and having a bed pan placed under her when she turned on her back.

It was thought best for the patient to go home for Christmas, and return later for closure of the fistula. In January, 1918, she returned, but there was so little leaking that she preferred to wait longer. In March, 1918, the opening in the bladder had contracted to 1 cm. in diameter. At this time the silk stitches previously noted were removed. They could be pulled down into the vagina through the cervix, and were divided with scissors.

In April, 1918, five months after the bladder was ruptured, a second attempt was made to close the fistula. I tried this by the perineal route, using Schuchardt's para-rectal incision, so graphically described by Dr. George Gray Ward, Jr., in *Surgery, Gynecology and Obstetrics*, August, 1917. Without this procedure it would have been impossible to operate from below, as the opening in the bladder communicated with the cervix just below the peritoneal covering. The anterior vaginal wall was incised longitudinally, the incision beginning 5 or 6 cm. anterior to the cervix, and extending back to it. The bladder was dissected as wide as necessary to prevent tension on the sutures. A female metal catheter in the bladder served as a guide to expose the fistula. The cervix was circumscribed and dissected as far as possible, especial effort being made to remove the

mucosa. Lembert sutures of chromic catgut closed the bladder. A second row, including whatever remained of cervical tissue, reinforced the first. These last sutures did not approximate the tissues completely, for fear that too much tension might be put on the bladder. The vaginal mucosa was then closed, and a retention catheter inserted into the bladder. It was very little trouble to close the para-rectal incision. A small drain was left in this wound. The patient made a good recovery. The catheter was removed on the 7th day, and the patient left the hospital on the 14th day. There has been no leakage up to the present time—one month after operation.

Aside from the recovery of the patient, the interesting feature of this case is the successful closure of the vesico-cervical fistula by the para-rectal incision of Schuchardt. The incision is simple, injures no important structures, and provides an excellent exposure.



A CASE OF FRACTURED PELVIS WITH RUPTURE OF THE BLADDER IN AN INFANT UNDER TWO YEARS, WITH RECOVERY.

By ROBERT W. ANGEVINE, B.S., M.D., ROCHESTER, N. Y.,
First Lieutenant, M.R.C.

A FEMALE baby, 23 months of age, was recently admitted to the accident room of the Rochester General Hospital, suffering from injuries received in an automobile accident. According to the history, a rear wheel of a five-passenger automobile passed over the child's pelvis and lower abdomen.

The baby presented but few symptoms of shock, but was restless. Pain apparently was not great. Few physical signs were present. There were several superficial abrasions marking the line of passage of the wheel across the pelvis. The abdomen was slightly more tense than normal. There was no spasm or rigidity of abdominal muscles. No fluid wave could be made out, but flatness in the lower flank could be noted when the child was placed on either side.

An x-ray, taken immediately, indicated an oblique fracture of the left ramus of the pubis within 3-4 inch of the symphysis. Catheterization gave an ounce of fluid, containing a large proportion of fresh blood. An hour after the accident, a small catheter was passed and six ounces of sterile salt solution were injected into the bladder. Subsequent catheterization within five minutes yielded only two and one-half ounces of fluid, containing blood.

Under ether anesthesia, a mid-line incision one and one-half inches long was made just

above the symphysis. Free fluid, containing blood and having a urinary odor, was present in the abdominal cavity. Inspection of the bladder showed a tear three-fourths of an inch long, extending antero-posteriorly along the bladder-wall. This was stitched with catgut and the abdomen closed, a small rubber drain having been fixed in place and a catheter passed. The drainage was removed after forty-eight hours. After operation, the child was placed in a canvas hammock swung over a crib.

The temperature did not exceed 100° at any time. The child made a good recovery after a convalescence without complications.

Book Reviews.

The Diagnostics and Treatment of Tropical Diseases. By E. R. STITT, A.B., Ph.G., M.D. Second Edition. Philadelphia: P. Blakiston's Son & Co. 1917.

In the second edition of this manual of tropical diseases, two new chapters, one dealing with typhus fever, the other with spotted fever of the Rocky mountains, have been added to Part I. Part II, the section dealing with the diagnostics of tropical diseases, also includes two new chapters, concerning the special problems of diagnosis in the tropics and the diagnostic value of clinical manifestations from the side of the cutaneous system and organs of the special senses. The entire book shows an advanced knowledge of the etiology and treatment of tropical diseases. The majority of these diseases are classified as those due to protozoa, to bacteria, to filterable viruses, infectious granulomata, and tropical skin diseases.

Microbiology. Edited by CHARLES E. MARSHALL. Second Edition. Philadelphia: P. Blakiston's Son & Co. 1917.

This volume, "Microbiology," is an introductory text-book of microorganisms, general and applied, to which many authors have contributed. Its purpose is to provide for college students an elementary technical treatise of the subject, to be used for recitation, and as a supplement to lecture and laboratory courses. The text is systematically divided into three parts: the first deals with the morphology and culture of microorganisms, and describes the elements of microbial cytology, molds, yeasts, bacteria, invisible microorganisms, and protozoa. The second part deals with the physiology of microorganisms, including such subjects as nutrition and metabolism,—food of microorganisms, the products and mechanism

of metabolism,—and the physical, chemical, and mutual influences. Part three discusses applied microbiology, and deals with microbiology of air, water and sewage, soil, milk and milk products, of special industries,—such as desiccation, evaporation, preservation by heat, cold, or chemicals, the manufacture of vinegar, vaccines, and antisera,—and microbial diseases of plants, insects, man, and domestic animals.

A Manual of Nervous Diseases. By IRVING J. SPEAR, M.D. Philadelphia and London. W. B. Saunders Company. 1916

This book is an attempt to condense into one small volume the essential facts of the anatomy, and physiology of the nervous system, together with descriptions of the important nervous diseases. It is by no means to be regarded as among the "quiz compend" class of books, but succeeds to a surprising extent in attaining the author's object. The only serious lack we have discovered in the book is that of a failure to give in sufficient fulness the essential facts in regard to the methods of examination of the cerebro-spinal fluid, especially important in syphilitic diseases of the nervous system. Though this examination is spoken of under syphilis of the nervous system, the methods are not given very fully, and reference to the spinal fluid does not always appear where we have a right to expect it. On the whole, however, the defects of the book are chiefly those due to the limitations imposed upon the author by his plan, and so unavoidable.

Psychological Medicine. By MAURICE CRAIG, M.A., M.D., (Cantab.), F.R.C.P. (Lond.) Philadelphia: P. Blakiston's Son & Co., 1918.

This treatise on mental diseases has the merit of so many English books on the same subject of being clear and adequate in its descriptions of clinical forms of such diseases. Though praising Kraepelin's classification of mental diseases the author does not adopt this, but still elings to some of the older types of disease, such as mania, and depression, puerperal and climacteric insanities, terms which at the present time have grown to be almost meaningless.

The chapters on imbecility and the insanities associated with general diseases such as hysteria, myxedema, and chorea are welcome additions to a book on mental diseases. The chapter on the psychoneuroses occurring in the war is exceedingly brief, and advances in the understanding of these cases will require the rewriting of this chapter in any future edition of the book. The changes in the cerebro-spinal fluid in paresis also deserve fuller discussion.

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REPORT OF THE CHAIRMAN OF THE COMMITTEE ON MEDICINE AND SANI- TATION.

THE Advisory Commission of the Council of National Defense has issued a pamphlet summarizing the civilian medical activities in connection with the war to April, 1918. The report is written by Dr. Franklin Martin, Chairman of the Committee on Medicine and Sanitation.

The Council of National Defense is composed of six members of the President's Cabinet—the Secretaries of War, Navy, Interior, Agriculture, Commerce, and Labor. The council nominated and the President appointed an advisory commission of seven specially qualified persons, each having knowledge of one great field. The chairman of the Committee on Medicine and Sanitation of the Commission was authorized by the council to organize the General Medical Board for the purpose of aiding in the

enormous expansion of the various Government bureaus and coördinating with their work the resources and talent of the civilian medical profession. Control of the previously authorized State and county committees was assumed by the General Medical Board. Names of representative medical men were submitted by the chairman and they were appointed to the board by the Secretary of War. The board thus represents the civilian population in its relation to the four Government administrative offices of the Surgeons-General of the Army, Navy, Public Health Service, and the Red Cross, and through it the organization for war of the medical profession is being carried out.

To the Committee of American Physicians for Medical Preparedness was delegated the duty of formulating plans whereby the civilian medical resources of the United States might be effectively coördinated for such purposes as might be required by the Federal Government. To this end, the committee made a survey of hospitals and sanatoria to discover the capacity of 1700 of the leading institutions of the country and their facilities for caring for military and civilian needs.

Further activities of the Committee on Medicine and Sanitation extended to the Medical Reserve Corps; 20,000 selected men were communicated with and urged to enroll. Letters were sent to pharmacists, sanitary engineers, and ambulance drivers, advising them as to where they could be of most service to the Army. The Committee on Standardization was authorized for the purpose of standardizing essential medical and surgical supplies and equipment, to increase speed and reduce cost of production. Another division investigated medicinal products for the offices of the Surgeon-General of the Army and of the Bureau of Medicine and Surgery of the Navy, and the elements which could be released for explosives were ascertained.

The General Medical Board has coöperated with the Government Departments of Medicine, Surgery, and Sanitation. At a meeting held on April 9, 1917, the following recommendations were considered and approved:

1. Request of the American Red Cross that the legislative committee endeavor to secure through the enactment of proper legislation a place in Washington, D. C., for the storage of medical supplies to be furnished by the American Red Cross to the Army.

2. Survey of available supply of medical men for military and civilian needs.

3. Immediate assignment by the Surgeon-General of two medical reserve officers in each State to make personal canvass of their respective States for the purpose of increasing the enrollment of medical men in the Reserve Corps.

4. Coöperation of the Committee on Research with the National Research Council in its activities.

5. Conservation of the source of supply of medical men—namely, third and fourth year medical students—by recommending that they complete their medical education, in order that the Government might receive the benefit of their trained services upon graduation.

6. Plan of the Committee on Dentistry to increase the personnel of the Dental Corps of the Army and Navy, and to mobilize the dental facilities of the country for military needs.

7. Classification of the staffs of hospitals according to availability for immediate military service and institutional needs.

Immediately upon the arrival of the British and French commissions in this country, in April, 1917, the chairman communicated with Mr. Balfour and members of the Joffre Commission concerning the need for medical men and supplies in the war zone. As a result of this conference he recommended to the Surgeon-General's Office that 10 base hospitals with personnel sufficient for 1000 beds each, and 2000 ambulances be sent to France and attached to the French and British forces. Within a month base hospitals were on the other side in the service of the Allies.

On June 11, 1917, the Executive Committee of the General Medical Board appointed a committee to investigate plans for cantonments and location of camp sites. As a result of this committee's investigations, on June 13 a recommendation was made to the Secretary of War that a regulation be made and enforced that the selection of camp sites and all plans for the construction, repair, and location of buildings, water supply, drainage, sewage disposal, and other matters relating to hygiene and sanitation be submitted to the Surgeon-General or his representative for approval before work was started. The Secretary approved the recommendation, and the regulation was made.

On June 2, 1917, a conference, called by the chairman of the General Medical Board, was held to consider the matter of reconstruction of wounded soldiers and sailors and their re-education for return to civil life upon discharge from the Army and Navy.

As a result of this meeting the Committee on Re-education and Rehabilitation of the General Medical Board was appointed. This body met frequently, and as a result of its recommendations the chairman of the General Medical

Board presented to the Secretary of War a plan for the formation of a reconstruction board, upon which would be represented the following departments and interests: United States Army, United States Navy, United States Public Health Service, American Red Cross, Council of National Defense, hospitals and laboratories, medicine and surgery, vocational education, labor and industry.

The Secretary of War instructed the Surgeon-General to call a conference in Washington on January 14, 1918, to which representatives of the departments interested were invited for the purpose of formulating a definite plan of action. A bill was drafted which is now before Congress, providing for the vocational rehabilitation and return to civil employment of soldiers and sailors disabled in the line of duty.

Special committees of the General Medical Board have investigated such problems as child welfare, civilian coöperation in combating venereal disease, dentistry, hospitals, hygiene and sanitation, industrial medicine and surgery, legislation, medical advisory boards and schools, nursing, and research work.

VITAMINE CONTENT OF CEREAL FOODS.

It is now pretty well understood that the mere balancing of the ration is not sufficient to insure adequate nutrition unless the food elements also contain a sufficient amount of the accessory food elements in the form of vitamins. Nearly every food contains a vitamin of its own, which, however, is not self-sufficient, and must be consumed with vitamins of other foods. There must be a mixture of vitamins as of other food elements. It has long been supposed that the cereal foods were particularly poor in vitamins, especially in such vitamins as acted to prevent beriberi, pellagra, scurvy. However that may be with respect to pellagra, it now seems certain that the cereals contain an abundant amount of antineuritic vitamins. The vitamins in cereals is contained in the peripheral layers and in the germ. It is lacking in the endosperm. It is the polishing of rice with its removal of the peripheral vitamin-bearing layer that is the cause of beriberi. Similarly, the high milling of flour removes not only the peripheral layer, but the kernel as well, and causes rapid loss of weight and neuritic symptoms in experiments on fowl. Modern milling methods remove about 30% of

the product and that part which is so highly important because of its antineuritic vitamine content. Even aside from nutritional grounds, the important question of food conservation at this time should operate to prevent high milling and the resultant waste.

While it is true that the addition of yeast to the flour delays for a long time the onset of neuritic or nutritional disturbances, it does not prevent them. On the other hand, the use of whole cereal products does not produce neuritic symptoms in the animals under experimentation, and the addition of the whole products or experimentally of the extract of the whole cereal acts as a curative in cases that have already developed the characteristic disturbances. It is true that some of the cereals contain more vitamine than others, or that a cereal product at one time may contain more vitamine than the same cereal at other times. The amount of vitamine a cereal contains at a given time is indicated by the amount of phosphorous pentoxide that it contains, because the amount of vitamine and the amount of phosphorus are the same. Both of them are, of course, contained in the periphery and in the germ. The cereal foods are still the cheapest, although valuable foods, and it would be highly undesirable to destroy their value as foods by any artificial process which would deprive them of their vitamine content. Because of war necessity, white bread is going out of use very rapidly, and it would be highly beneficial if it would remain out in post-war times.

THE PREVENTION OF PUERPERAL SEPSIS.

SINCE Semmelweis and Holmes made their important observations on the causes of the high puerperal mortality from septic infections introduced by students and others from the dissecting laboratory, the necessity for strict asepsis during parturition is no longer an open question. During labor the parturient canal presents the best possible medium for the growth of pathogenic organisms. No degree of aseptic precaution, even to the degree of that observed in major surgical operations, is too much for observing during labor. Yet, in spite of the strictest aseptic precautions,

there is still too much puerperal sepsis. No matter what the precautions taken, too frequent vaginal examination of the parturient woman encourages infection. This is particularly likely to happen in patients who have had septic infections in previous labors. For these patients, vaginal examinations should be almost entirely interdicted. There is, fortunately, a growing tendency to substitute rectal examination for the usual vaginal examinations wherever possible. As far as possible, the position of the child and the progress of labor should be judged by external examination. The progress of the head into and through the pelvis can be determined by following the changing location of the fetal heart sounds. The necessity for frequent vaginal examinations is particularly reduced by a knowledge of the pelvic dimensions gained by accurate measurements during the pregnancy. It must be appreciated that the relation of the fetal parts to the known measurements of the pelvis can be determined fairly accurately by measurements through the abdominal wall of the mother. With these points at hand the vaginal examination can be dispensed with, even if the rectal examination must be retained to determine cervical dilatation.

As a last and important factor in the reduction of puerperal sepsis, the possibility of hematogenous infections should not be overlooked. Every focus of infection in the body, no matter how trivial, may be responsible for a severe and perhaps even a fatal attack of puerperal sepsis. The most frequent focal infection that operates in this respect is infections of the tonsils and teeth. These must be constantly guarded during pregnancy. Any caries or infections should be promptly cleared up, and examinations made frequently enough to discover new dental conditions should they arise. Unless every avenue of infection is knowingly closed, there is no justification for calling a case of puerperal sepsis where aseptic precautions have been observed during labor idiopathic.

CARDIAC SYPHILIS.

UNTIL rather recently very few were accustomed to think of the complications of syph-

ilis in terms of the heart. Yet it is probably one of its most frequent complications, and of the most serious immediate significance. Of course it was well understood that arteriosclerosis and aneurysm had much to do with syphilitic infection when occurring in comparatively young individuals. In these conditions the effects were believed to be indirectly caused by syphilitic infection. But in cardiac syphilis the condition is the result of lymphocytic infiltration and subsequent fibrosis. The demonstration of the spirocheta pallida in the cardiac tissues has been frequently accomplished. Aortic disease, when uncomplicated with other valve lesions and occurring in young individuals, has long been recognized to be of syphilitic origin. Acute endocardial infection of rheumatic origin rarely affects this valve alone. While aortic disease was believed to be the most frequent cardiac complication of syphilis, occurring in about 78% of the cases, it is now found that general cardiac syphilis is even more common, occurring in about 88% (Waethin, *Journal Medical Science*, clii, 508). Syphilis affects the endocardium, myocardium and the pericardium. Previously cardiac syphilis was thought to be entirely a tertiary lesion, but it is now known to occur in the secondary as well as in the tertiary stage. Even in congenital syphilis is cardiac syphilis common. It takes the form of a diffuse myocardial infiltration, with the presence of the spirochetes in the tissues. Cardiac subjective physical symptoms may all be present in the syphilitic cases, as well as such objective signs as enlargement, thrills and murmurs. Decompensation is extremely likely to occur and is of extremely grave prognostic significance. In all likelihood, every case of syphilitic infection is accompanied by cardiac involvement. Often it is the only involved organ that gives symptoms, the disease not being suspected before. Symptoms of aortic disease in individuals under fifty are now taken as an almost infallible sign of syphilitic infection. In any case, aortic disease is of a chronic nature. Cure is not to be expected. Improvement can, however, be expected when recognized early. But treatment must be intensive and persisted in until positive changes for the better occur. Other than antisyphilitic treatment, the cardiac disease rarely needs treatment except in decompensation.

MEDICAL NOTES.

EPIDEMIC OF SPANISH GRIPPE IN SWITZERLAND.—An epidemic of Spanish gripe has invaded Switzerland and is spreading rapidly, attacking particularly persons under forty years of age. Several deaths have occurred among interned British prisoners at Chateau Dex, and a military doctor at Soleure has died from the gripe. On July 9 there was said to be 6800 cases in the Swiss Army.

NATIONAL HEALTH WORK CENTRALIZED.—President Wilson has placed all sanitary and public health activities carried on by executive bureaus, agencies and offices created during the war under jurisdiction of the Public Health Service. The order was promulgated to avoid confusion in policies, duplication of effort, and to bring more effective results and unity of control. It does not affect jurisdiction of the medical departments of the Army and Navy or of the Provost Marshal-General in performing health functions of a purely military character; nor is it designed to prohibit investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation and hygiene.

DANGERS IN DUST.—An interesting investigation of dust has recently been made by M. Burnet of the research laboratories of the Pasteur Institute in Paris, the object of the investigation being to determine the presence of tubercle bacilli in various places. Samples of fresh dust were taken from the streets which, being much used for traffic, are constantly swept. Others were taken from the passages and aisles of theatres, movie shows and the waiting rooms of department stores. The number of samples, thirty-six in all, was not large, but the bacillus of tuberculosis of virulent type was found in three of the eighteen fresh samples. No one of the dusts contained proteus, but anaerobic members of spore-forming types were present. Perfringens, sporogenes, and the germ of tetanus were isolated, and the latter was found in one-third of the samples. M. Burnet was unable to find the *vibrio septique*, although it should be a constant microbe of the earth.

THE SPANISH EPIDEMIC.—In a recent issue of the JOURNAL we commented on the epidemic at that time prevalent in Spain. The following further description of this epidemic has ap-

peared in a recent issue of the *Medical Press and Circular*.

"The disease, the causation of which is at present obscure, which appeared in Madrid a few weeks ago, is rapidly spreading. It is stated that in Madrid alone there have been over 100,000 cases, and that already nearly 1000 persons have died. The condition is described by Dr. Pittaluga, in an article in the *Sol*. He states that the disease appears suddenly without premonitory symptoms, accompanied by severe headaches during a few hours, high fever, throat irritations or slight bronchitis, with a dry hacking cough and complete loss of appetite; muscular and articular pains, general debility, and gastric disturbance. The second day is marked by profuse perspiration, the fever diminishes, and disappears on the third or fourth day, the cough being accompanied by expectoration. The disease attacks the respiratory organs, rather than the intestines, men more than women, children scarcely at all. Many are attacked twice within a few days. Although the disease is clearly of a grippal character, bacteriological examination reveals the absence of the influenza bacillus and the presence of one described as *parameningococcus*. Dr. Pittaluga suggests that these germs acquired during the spring special virulence in the immense agglomerations of humanity on the Western front by a process of natural selection, and were carried thence to other centers of population, where the infection spread rapidly through the respiratory organs. The best preventives are fresh air, cleanliness, and constant disinfection; cures are effected rather by careful dieting than by medicine."

WAR NOTES.

BAY STATE COMMISSIONS.—The following appointments in the Medical Reserve Corps have been announced:

Captain: S. C. Cox, Holyoke.

First lieutenants: S. L. Marnery, A. D. Vamvas, Homeopathic Hospital, Boston.

BROCKTON PHYSICIAN PROMOTED.—Dr. Henry J. Lupien, of Brockton, who enlisted in the Medical Officers' Reserve Corps several weeks ago, has been commissioned a second lieutenant. He is the eleventh doctor to leave Brockton for war service.

HARVARD MEDICAL STUDENT CAPTURED.—George T. Roe, formerly a Harvard Medical School student, has been captured by the Germans while in service as a naval aviator, and is now being held a prisoner.

WAR RELIEF FUNDS.—War Relief funds have reached the following amounts:

Belgian fund	\$682,568.54
French Orphanage fund	380,437.06
French Wounded fund	375,225.41
Italian fund	182,308.82

COURSE IN ORTHOPEDIC SURGERY.—Three captains in the Medical Reserve Corps, Charles A. Cahn and Emerson Megrail, from Camp Pike, Little Rock, Arkansas, and Howard R. Dudgeon, from Camp Greenleaf, Fort Oglethorpe, Georgia, have registered and are ready to start a two months' course in orthopedic surgery at the Harvard Medical School. This study will be under the direction of Major Robert W. Lovett.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 6, the number of deaths reported was 201, against 211 last year, with a rate of 13.36, against 14.25 last year. There were 28 deaths under one year of age, against 29 last year.

The number of cases of principal reportable diseases were: diphtheria, 42; scarlet fever, 8; measles, 103; whooping cough, 40; typhoid fever, 2; tuberculosis, 60.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 2; measles, 2; whooping cough, 1; typhoid fever, 1.

Total deaths from these diseases were: diphtheria, 5; measles, 3; whooping cough, 6; typhoid fever, 1; tuberculosis, 17.

Included in the above were the following non-residents: diphtheria, 4; whooping cough, 1; tuberculosis, 3.

BOARD OF HEALTH OF WORCESTER.—The annual report of the Board of Health of the city of Worcester for 1917 shows a mortality rate of 14.88 per thousand, the number of deaths being 2791. 4834 cultures for diphtheria, of which 333 were positive, were examined during the year, and 159 Widal tests for typhoid bacilli, of which 24 were positive, were made. 377 cases of scarlet fever, 62 of typhoid fever, 333 of diphtheria, 402 of pulmonary and laryngeal tuberculosis, 6 of infantile paralysis, and 39 cases of smallpox were reported. There were 12,760 persons vaccinated.

The report of the school nurse shows that the results of this department have been gratifying; the total number of visits was 1608.

Belmont Hospital has treated 570 patients. An appropriation of \$17,000 has been made for the erection of a new ward for minor infectious diseases.

The inspectors of meats, provisions, and milk have endeavored to maintain the highest standards. 3009 visits were made to markets during the year.

NORTHAMPTON STATE HOSPITAL.—The sixty-second annual report of the Northampton State Hospital has been submitted for the year 1917. The report shows that the daily average of patients supported was 994.42. The total amount expended for maintenance was \$270,294.51. To relieve congestion, the Commission on Mental Diseases transferred one hundred and thirteen patients during the year to Grafton State Hospital, to the Gardner State Colony, and to the Mouson State Hospital. This has afforded only temporary relief, however, and it is necessary that the institution be enlarged in some way. Separate buildings are needed, also, for nurses and attendants. Several changes have been made on the medical staff during the year. Clinics have been held regularly each month at Springfield, Pittsfield, and Greenfield. Statistics relative to patients may be found in tables appended to the report.

SURVEY OF NURSING RESOURCES.—The Massachusetts State Nurses' Association has published a survey of nursing resources for Massachusetts. The membership of the State Association amounts to 1300. County associations total a membership of 3997. There are 3997 graduate registered nurses, 2009 graduate nurses not registered. The number of Red Cross nurses in service totals 1184, of whom 119 are in foreign units. 4095 persons have taken the Elementary Hygiene and Home Nursing Course and were awarded certificates. There are 756 attendants, trained and in training, and 1282 domestic nurses. The total number of student nurses in training schools amounts to 5599. The total number of persons giving nursing service is 12,541.

JEWISH WOMEN'S HOSPITAL.—The Jewish Women's Hospital Association established a Maternity Clinic in Boston in 1916. It has proved to be of great usefulness to the community. Three hundred and eighty patients have been treated. The Social Service Department has made three hundred home visits be-

fore confinement and many follow-up calls. The coöperation of the District Nursing Association has been invaluable.

The future needs of this organization consist of: provision for expert medical advice on certain cases, the securing and retaining of competent house officers, the extension of the work of the Social Service Department, and district nursing help in communities not covered by the Boston organization.

FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION.—The Community Health and Tuberculosis Demonstration of Framingham has issued a second monograph, describing another phase of the \$100,000 experiment which is being undertaken against tuberculosis. This is the first publication of the medical series, and presents the results of health census, medical examination, tuberculosis survey, and other allied activities.

The chief steps taken in this survey included thorough local publicity, the selection of fourteen agents and twenty nurses to aid in the work, the preparation of a census form with a set of instructions, the securing from the several insurance companies of the names and addresses reached by them, and home visits. Thorough medical examinations were provided for those who wished it.

The results of this work show that such a health census may be readily associated with community-wide medical examination work. Of the 1455 families enumerated in the census, 649 were later examined. 6582 people were enumerated in this sickness census. 38 cases of positive or suspected tuberculosis were discovered. The health census proved to be a valuable source of information along social and morbidity lines, particularly regarding tuberculosis, prenatal work, and infant welfare.

Statistics show that the most common illnesses were colds, heart disease, rheumatism, diseases of the stomach, tuberculosis, "coughs," bronchitis, influenza, "nervousness," diseases of the kidneys. There was a relatively high percentage in the advanced-age period. The sickness rate in Framingham was 1.8%. The American and Italian groups were the predominating types covered in the census. The percentage for families in good economic condition was 5.2; for families in fair, good, and bad economic condition, 7.4; and for families in unknown economic condition, 5.2.

The monograph includes a sample leaflet used in preliminary publicity and instructions on the use of the health census cards.

NEW ENGLAND NOTES.

CRANE SANATORIUM APPROVED.—Dr. Charles E. Banks, chief medical adviser of the Bureau of War Risk Insurance, has indorsed the erection of the Crane Sanatorium for tuberculous persons.

This institution would permit the treatment of many New England soldiers within easy access of their relatives and friends who otherwise would be sent West or South, many miles from home. The indorsement reads as follows:

"The proposed institution which you are to establish for the treatment of tuberculosis appeals to me as one of the most important of the secondary war measures which can be undertaken at this time.

The increase of tuberculosis in the National Army following the draft, resulting in the development and discovery of approximately 10,000 cases, indicates the extent to which the public health is menaced by the return of these discharged soldiers to civil life. I regard the establishment of institutions of this character of primary importance to the civil population among which they are to live, unless suitable provision is made for them in institutions like your own, which do not exist in adequate number.

I have no hesitation in recommending this as an absolute necessity under present conditions, and believe that it should not be classed as non-essential enterprise subject to ordinary conditions which govern the employment of capital. The Bureau of War Risk Insurance can make the most ample use of it when completed, as it has found difficulty in securing adequate accommodations under existing conditions."

GIFT OF \$300 TO ROCKPORT HOSPITAL.—By the will of Loring Grimes of Rockport, Maine, the sum of \$300 has been given to the Leander Haskins Hospital.

RECENT DEATHS.

DANIEL JOSEPH FINEGAN, M.D., died at Gloucester, his home, June 15, 1918, aged 49 years. Dr. Finegan joined the Massachusetts Medical Society in 1907, and had been a Councillor from the Essex South District Medical Society since 1915. He was a graduate of the Tufts Medical School in the class of 1902.

DR. WILLIAM SIDNEY SEVERANCE, dean of physicians in Franklin County, died in Greenfield, on July 1, at the age of 89. He was born in Leyden on March 24,

1829. In 1853 he completed a medical course at the Eclectic Medical Institute in Cincinnati, Ohio. For more than 50 years Dr. Severance continued in active practice.

DR. JOHN G. LANE died at his home in South Boston on July 6. He was born in Philadelphia in 1854. He graduated from Trinity College, Dublin. He returned to Boston about 35 years ago and started practice in Cambridge, and shortly afterward settled in South Boston where he became one of the most successful physicians and surgeons of that district. Dr. Lane was a member of the South Boston Medical Society.

DR. LORING W. PUFFER died at his home in Brockton on June 30, at the age of 89. Dr. Puffer was born in Stoughton in 1828. He was a graduate of the Boston Dental College, where he became professor. He practised dentistry until about 16 years ago, when he retired, to devote himself to his real estate and insurance business and to newspaper writing. He was editor of the *Brockton Advance* and the *Brockton Eagle*. He was a member of the Old Bridgewater Historical Society, the New England Historical and Genealogical Society, the Natural History Society of Boston, the Massachusetts Press Association, one of the founders of the Brockton Agricultural Society, a former trustee and vice-president of the Plymouth County Agricultural Society.

DR. JOHN E. SOMERS, for 40 years a practising physician in Cambridge, died recently at the Massachusetts General Hospital, as a result of edema of the throat brought on by an operation. He was born in Antigonish, N. S., 67 years ago. He was educated at the St. Francis Xavier University of Nova Scotia, and attended the Bellevue Hospital and the Harvard Medical School, from which he graduated in 1875. In 1897 he spent a year in the hospitals of London, Paris and Vienna. In 1900 he went to Vienna for another year's experience in the hospitals there. He was a member of the Massachusetts Medical Society, the American Medical Association, the Boston Medical Association and the Cambridge Improvement Society. He was a member of the original board of directors of the Holy Ghost Hospital of Cambridge.

DR. FRANK CHASE RICHARDSON, for 39 years a specialist in nervous diseases in Boston, and for years Professor of Neurology at Boston University School of Medicine, died on June 20, at the summer home of Dr. Nathaniel Emerson of Boston.

Dr. Richardson had been suffering for some time with lung trouble. He was born in 1859 in Boston, of old New England ancestry and was educated in the public schools and Boston University, where he took his degree of M.D. in 1879, beginning practice immediately afterward.

He took a post-graduate medical course in New York and later attended both Harvard Medical School and a medical school in Vienna, Austria.

Dr. Richardson had held high positions in the Homeopathic Hospital. He had lectured much throughout the country on brain and nerve diseases.

Dr. Richardson belonged to the Homeopathic Medical Society and other medical organizations.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

PATRIOTIC ADDRESSES AT THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY, JUNE 19, 1918.

MAJOR HENRY D. JUMP, M.R.C.: Mr. President and members of the Massachusetts Medical Society: We are reading in the newspapers lists of the daily losses, but it is not often that the men are lost as are our guests this morning. It is hoped that the missing,—Sir James Mackenzie, Col. Herbert Bruce, and Sir W. Arbuthnot Lane,—may be discovered not in the hands of the enemy, but detained by unavoidable circumstances. My particular object in coming here is to talk to you about the Medical Officers' Reserve Corps. I feel that the message which I can give you will not fall altogether on barren ground, for there are some men of military age in the audience. Recently I had the privilege of speaking in Little Rock, Arkansas, and my audience was composed of ninety-nine per cent. of men in uniform and one per cent. of Red Cross nurses in uniform. As I had nothing to say to men in uniform I was at a loss to find material to talk about. The condition isn't so bad this morning, and I hope, as the reinforce-

ments are brought up, to make some impression.

In the last three months or more the reserve force, the Medical Officers' Reserve Corps, has been depleted week after week. We have not been able to keep pace with the number of men who have been sent into camp, and the number that have been discharged for one reason or another. The enrollment in the corps is coming up considerably, but it is not yet equal to the drain on the reserve. I dwell on the word "reserve" for the reserve is what the name indicates—a body to be called upon like the reserve in a bank or like the reserve power of your heart, to be called upon when there is need of additional force. This reserve at present comprises about 1700 men. Of the 1700 we must count a good many who have been in the Reserve Corps since before the war and who, because of age or disability or teaching necessities will never be used in the field, and I feel I am conservative in saying that there must be 1000 of that number or more who can never be used in the field. That leaves us a very small reserve, and you know from the news in the papers for the last month the Provost Marshal proposes to call out 800,000 men in the coming year. And according to the present plans of the Surgeon-General there are to be ten physicians to every thousand soldiers.

and that means 8000 doctors, and General Gorgas has issued a call within the last few months at the suggestion of the Council of Defense, Medical Section, stating his needs and the condition of affairs in the Reserve Corps. He has asked for 5000, and when he asks for 5000 men, he had in the Reserve Corps 3000, and in that way he is going to be able to supply the 8000 needed. Since that call the War Department and the President have said that they thought we should have an army of not less than 5,000,000, and 5,000,000 soldiers, ladies and gentlemen, means 50,000 doctors to take care of them. That means a good many doctors. In our calculations in the Council of National Defense we have calculated the numbers very exactly by the census in the States. We have eliminated those above the age of 55 who cannot now get into the Reserve Corps, the women physicians, those who have disabilities, those who are supplying isolated communities—and those communities must be cared for—eliminating a half of the hospital staffs, which we feel will be able to carry on the hospital work under strenuous times such as these, and the aliens and the board of health men whom the Surgeon-General desires to continue, or at least, enough of them so that the work of the boards of health shall continue and the public shall not seek refuge behind his office. When we have eliminated all of those factors, we find that there are 33.5% of the doctors of this country who may be deemed available. That means about 45,000 men. A third of all the medical population of Massachusetts is deemed available for service with the Army or Navy, and we ask you, ladies and gentlemen, to get that third. A quota has been given to Massachusetts—about 100 more before July 1 in order to supply the 5000 that General Gorgas asked for. I ask you not to stop at the 100. Why should you? Get enrolled so that we may know where you are, that you may be called upon when the need arises. And I wish to say to you further that no man will be called away from his practice until there is work for him to do; and no man will be asked to do that sort of work which he is not qualified to do. I may put it this way: That ultimately every man will be put into that place which he is best qualified to fill. That is, the surgeon will be asked to do the surgery, the internist to do the internal medicine, the ophthalmologist to take care of the eyes, and the laryngologist to

take care of the throats. In other words, this Army is to be cared for by medical specialists, but as the exigencies arise any man may be asked to bear a hand in doing what there is to be done. We do not belong to any union, we do not stop when the whistle blows, we do not limit ourselves to any one particular thing, but we are a class that has been accustomed to do anything which appears on the surface to be done. Therefore the ophthalmologist may be required to give the anesthetic, to make bandages or do dressings. I asked a colonel what an internist can do in surgery, and he replied, "Well, he can't do much, but the soldiers would be better off with the surgery you can do than to have none." I said, "I don't think so; it would be better that some of us internists should do no surgery, but we can do the chores." Although I say the man will do ultimately the work that he can do best, I say that you may be called upon to do anything within your abilities, and any one who has got into the Reserve Corps will be doing more than he has been accustomed to do day by day. The work of the Surgeon-General's Office has been divided into divisions for the purpose of selecting men to do particular work in a particular way. There are some 200 men at work on this, comprising the best men in the country. They are busily engaged; and I wish you to pay particular attention to this: They are engaged, not in operating or prescribing, but in doing clerical work. And you young men who have been saying, "I would be willing to go into the Army if I were doing medicine all the time," might do well to look at our leaders and see the cheerful demeanor of these men doing work that they have not been doing before. I have not written a prescription for a year, and men that you know very well have done no surgery. Take Colonel E. G. Brackett, for example—Colonel Brackett has done nothing in his special line of work. But those are the necessities of the time, and it is not for us who are needed, to pick faults with the regulations of the Surgeon-General's Office, which regulations have been formulated after many years of thought and planning. (Applause). You have in this city a medical examiner for the Reserve Corps. I understand he has been a very busy man of late, and you have got to make appointments with him far ahead. Do so when you are ready to be examined, and when you go before him take your two letters of recom-

mentation. If you can get time ahead, take your application blank and fill it out at your leisure and have it certified to by a notary; then you can facilitate the examination. You have got to be physically fit, not because all of your physical powers are to be called upon always, but because you have got to be prepared to do that thing which General Goodwin of England said to us that he had to do. He was in the first British Expeditionary force and took part in the retreat to the Marne. He said, "Day after day we participated in the retreat of the soldiers,—at night they lay down to rest and we surgeons went to work; we had four hours of sleep and got up the next morning and marched with the soldiers until we got to the point where we were afraid to ride our horses for fear we might go to sleep and fall off." You have got to be prepared to do that thing. Therefore you have got to be physically fit. The examination conducted by most of the examiners is practical. You are not expected to know all of the preliminary sciences, but you have got to demonstrate to the examiner that you have kept abreast of the times and have kept alert, for men have got to know how to take care of the sick or they will not be useful in the Army. You have got to bear this in mind—that this Army is going to be better cared for medically than any army in the world. Therefore we want you to know how to do a thing without going to read it up. The man that has got to consult his book ought to be allowed to stay at home, where it is convenient to read his book. You have got to be morally accredited. We are rather proud of the Medical Officers' Reserve Corps. We do not want it to be a rooming place for those who have wasted their time in riotous living. We want best men. After your examination papers have been completed, I would ask you who have any particular specialty, to have letters certifying your special fitness, to go in as your letters of recommendation, so that the examiner may know that some man who is well known to him is satisfied that you do good orthopedic surgery, for instance, so that he may get a better line on you and your professional abilities and make a proper recommendation after the papers have gone in. It takes about two weeks to get word from the Surgeon-General's Office, stating that you have been recommended to the Adjutant General for a commission or that he regrets, on account of a physical dis-

ability, he cannot accept your services. I would suggest to anyone of you that if you receive a letter of recommendation or rejection that it be treated as one of your most desirable credentials. I have some friends who have framed their rejections and have hung them on the walls of their offices so that their patients may know that they have offered their services but cannot be accepted. After the Adjutant-General receives the recommendation it takes two or three weeks to get through his office, so that there is a period of about four to five weeks before the commission comes. Frequently the word you get from the Adjutant-General is a telegram stating that you have been commissioned; please accept by telegraph, and signed by Adjutant-General McCrae. It is highly desirable that you accept this commission at once. If it cannot be done, you are justified in making a certain delay, but you ought to notify the Surgeon-General of the conditions that compel you to make this delay. You can call for immediate service—and there is a great demand for men for immediate service—or you may voluntarily select the time, giving a good reason, at which time you will be ready to go into the field. Colonel Coulter of the personnel division said to me four days ago, "I want a thousand men for Fort Oglethorpe at once and I don't know where I am going to get them." Fort Oglethorpe, as you know, is the medical officers' training camp near Chattanooga. Every division that I have visited in the Surgeon-General's Office is calling for men. We are needing men right away, and yet the Surgeon-General is willing within the limits of the emergency to give one the time asked for.

There is a demand from the Surgeon-General of the Navy for a thousand men for the Naval Medical Corps. Applicants should apply to the Medical Aide, Little Building, Boston, where full information will be furnished as to the proper procedures to be taken for entering the service. Candidates should be under 40 years of age to be eligible for the position of Assistant Surgeon.

Now, after a little time, you have received your commission, and you are waiting for the call; make your rough preparations to leave, but under no circumstances are you to close your office and sell out. There may be a delay, and many men have suffered a great deal because they felt

that they had to go at a moment's notice. You will always receive fifteen days' notice. If, when you get this fifteen days' notice, the circumstances are of such a character that you need more time, ask General Gorgas for an extension of time. Most of the men from now on will be sent to Camp Greeneaf at Fort Oglethorpe. At this point the medical training is being concentrated. The training camp at Fort Riley is being given up, and the instruction being concentrated at Greenleaf. There the instruction is three-fold. There you are made physically fit to stand the hard work which will come to you. Many men have complained that being fit the training may be too vigorous, that they cannot stand it. While some men were worked too hard at the beginning, at Greenleaf the matter has been so adjusted that the physical trainers, who are the best in the land, are dividing the work up according to the men's abilities, and if a man finds that he is getting too hard work, he may speak to the battalion commander, and the work will be adjusted. You all need training. You have been travelling around in automobiles; you have gotten soft and you have gotten fat and you have gotten sluggish physically, and training is a good thing. It is hard on a man who must have a cup of coffee after getting out of bed to go without his coffee, but it is best to get used to that. The fat men grow thinner under this physical training, and the thin men get fat, and as a matter of fact it is good for whatever ails you. As Colonel Noble said some time ago, some fat men had been able to send home an inch of belt a week—indicative of the improvement in the physical condition. While the physical training is going on, the training in military procedure is going on. You are learning to do that thing which most of you have learned to despise—paper work. You talk about it. You want to do medical work and you don't want to do paper work, but the clerical work is essential. There are the records of the Surgeon-General's Office whereby the soldier may have a perfectly clean record. Upon you depends the accuracy of those records, that your Government may be defended against fraud in the future and that the soldier may get justice. Paper work is a necessity. It does not look as bad as it sounds, and those who have told you that ninety per cent. of the work of the medical man is paper work are thinking of times of peace

and not of war times, because those who are engaged in active field service have enough work to do to leave the paper work to some one else. Your military training is getting you in the line of discipline. You who have been the autocrats of your particular firmament, who have issued orders and have accepted none, who have bossed all people whom you have been in contact with, learn now the value of subjecting yourselves to the orders of superior officers, and that is also good for what ails you. Moreover, he who learns to obey and accept discipline becomes a better officer and disciplinarian himself. For you medical men must command troops and you have got to learn how to do it in order to be most effective in this great military machine of the Army.

Coincidental with the physical training comes the medical training. There are being developed graduate schools at Greenleaf in all branches. Three schools of orthopedic surgery, two courses in internal medicine, one course in fractures, two courses in roentgenology, and so on, getting the latest information for the application of your specialty to military conditions so that when you get through with the camp at Oglethorpe you are a great deal more valuable to the Government than you were when you went in. Most any man who goes into the corps might well ask to be assigned to Oglethorpe at the beginning of his service. At that point you are assigned to the various units in which you would seem to fit best—the young men into the regiments and the ambulance corps and the field hospitals, the older men in the evacuation hospitals and the base hospitals and the special hospitals. Thus the burden of active, energetic, enthusiastic, optimistic work must fall on the young men out in the field, within the zone of advance from eight miles behind the line of fire to the very front line trenches.

There are certain classes of individuals in the country who must be restrained from going into the Corps. Certain men hold indispensable places, and I wish to draw to your attention a distinction between the place and the man: The place may be indispensable, but the man is not until he has determined positively that he cannot get a man to fill his place, somebody who is incapable of getting into the Reserve Corps. I speak of board of health officers, teachers in schools, staffs of hospitals, isolated communities. That class of

places representing indispensable medical work cannot be gotten rid of. But is the teacher of medicine indispensable when he can get an older man or a one-eyed man to take his place? Many men are taking refuge behind their positions in a small municipal board of health when there are many men within a striking distance who can fill their jobs just as well as they do, so that the place may be indispensable, but the individual is not if he can find a man to fill his place. Take the isolated communities: Every man in the Surgeon-General's office is insistent that the population is to be taken care of, and you cannot draw a man from the community where he is the sole physician for fifteen miles about. Somebody has got to stay there, and you have got to let him stay there until someone can fill his place. In a northwest county of Wisconsin there is a man who belongs to the Reserve Corps. That man was anxious to go. He had imbibed the spirit of the men in Canada, but the Surgeon-General wouldn't take him. When I was in Milwaukee a man in the audience got up and said, "I am ready to go to work again, where can I go?" The State Committee in that State or the Committee of the Council of Defense assigned that man to the county in Northwest Wisconsin, and this man who had not done a stroke of medical work for six years came to me with a smile on his face and said, "I have got a job. I am going to work tomorrow." (Applause.) That is one way that adjustments can be made, and adjustments must be made.

Now the class of individuals who cannot get into the Reserve Corps because of physical disqualifications are going to be cared for by the Volunteer Medical Service Corps. I think I will leave the description of that corps to Colonel Martin. It is a very important corps, which we have all been interested in, and it contains a good deal which is worth your while to learn.

Now why is it that you men of military age sitting here before me are not in uniform? There are some, the President tells me, that have been commissioned but not yet clothed (Laughter.) I am glad of it, and it has been most interesting and encouraging to see the steady stream that is going to Major Bottomley's office; but what is the reason that you men have not applied? Is it because you didn't know there is a need? Many of you have said you would come when you are

needed. I say to you General Gorgas has called for you: he has said there is a need. The need is present and immediate. And I say to you come on now or forever hereafter hold your peace. You have waited for General Gorgas to tap you on the shoulder. Perhaps he is busy and has sent me to do it, and I tap you. (Applause.) Is it the sacrifice? I grant you that hardly any man goes into the Reserve Corps, except he who has not yet begun to gain a livelihood from practice, to whom this is not a great sacrifice. Others have made it and so can you. You can adjust your affairs to a great extent in a large number of instances so that you can get into the Corps, and it is most interesting to note how easily you may adjust your affairs when you are up against grim necessity. I speak from personal experience. This is the day of universal sacrifice. Everybody has got to sacrifice something; and the sooner we get down to it and realize all the necessities for sacrifice, the better it will be for the conduct of the war. If you do not go into the service, you have got no right to buy a new summer suit this summer, for last summer's suit will do; tailors are needed to make uniforms. You have no right to buy a new automobile if your old automobile will do, for automobile mechanics are needed to build airships; to repair the machines needed in war, so that I say you have got to learn to sacrifice and to live well within what you have lived in the past whether you get into the Reserve Corps or not.

Have you been deterred by that terrible report that was promulgated last June that 60,000 British medical officers have been killed? You remember, perhaps, it was published in the papers, and it produced a profound impression upon everyone. I was a bit annoyed by it myself, but I tell you it is not true, and it can't be true, for Great Britain has had at no time more than 15,000 medical officers with her army. So that you see it is an impossibility. I do not know what the latest figures are because I have not been able to get them, but General Goodwin told me at about the end of the third year of the war, that on all fronts in the three years of war there had been lost of British medical officers, 249. Note, please, that the number was 249, and not 60,000. I hope that that will reassure you.

I wonder whether there are in the Common-

wealth of Massachusetts that class of doctors whom I have met in my own county society,—the Philadelphia Society,—and I imagine that perhaps there is here and there one of that class just as we found in our society a few, and that is the selfish man who is not going into the Medical Officers' Reserve Corps because he hopes to stay at home to fatten off your practice and mine. Are there any such? I wish to say that the triumph of that man is bound to be short lived. The people will use his services when they cannot get that of others, but when Johnny comes marching home, the profiteer has got to take a back seat. (Applause.) Because, gentlemen, recollect that there are hundreds of thousands of veterans that are going to come back when you come back, and other things being equal, you will find the choice of the people for medical adviser will rest upon him who has served the Army. It was so after the Civil War. You know the Grand Army of the Republic, what force it exerted in this country, and the same condition prevailed in the South with the Sons of Veterans. So that I say his gain must be a temporary one, and that man who can go and won't go is not to be admitted into the Volunteer Medical Service Corps, and by reason of having no badge and no uniform he will be a marked man, and you who walk down the streets will know that this man, not having a proper designation, can go but won't, and I have no hesitation in saying that you will leave that man's condition to the layman. He will look after him and his case. This matter has got to be decided by you gentlemen for yourselves. We can present to you the facts only; you have got to make the decision, but in making this decision I beg of you not to consider the sacrifice: no man who has made the sacrifice is thinking of the future, he is thinking of today. I ask you not to consider the emolument in rank that will come to you. I beg of you not to consider for a single moment the opportunity that may come to you, but I ask you to consider the glorious privilege to serve your country when she calls upon you. (Applause.) Just as your ancestors did when they fought in the Revolution and fought in the war between the States, I ask you to consider the honor which is offered to you of fighting for liberty and freedom and democracy and the freedom of the small states to live their lives, and not under the domination of the Hohenzollern

overlord. (Applause.) And I ask you medical men if you can afford to stay out of this contest? Can you, the best men the country has, the public-spirited, intelligent citizens, who are accustomed to give service without consideration of reward, can you afford to take no part in this war which is the greatest epoch the world has known since the beginning of the Christian era? Can you? Can you sit at home complacent and smoking and fattening while history is being made? Have you thought of it from that point of view? And what kind of an answer are you going to give to those patients of yours who are now beseeching you to take care of their wants when the word comes to that family that their son remains for hours in the hospital because there were not enough doctors to take care of him? What kind of an answer are you going to make? And, moreover, how are you going to square yourselves with your own conscience in the future? If you are able to harden yourselves so that the pricks of public opinion won't hurt you, what are you going to do about that small voice of conscience in the still hours of the night? How are you going to square yourselves? That is the important point to consider after all other points have been disposed of.

I want to say in closing, there is an urgent call for a number of physicians. The call is immediate. Your country has called for your services. We ask you to come into the Reserve Corps and help. (Applause.)

PRESIDENT WOODWARD: One of the greatest trials of my life was that I was born too late to get into the Civil War and too early to get into this one, and I want to tell you medical men if you have to go to the front the old men and the women physicians can take care of the patients at home. It seems to me after this address we might profitably sing something. Is Dr. Hawes here? (Battle Hymn of the Republic sung.)

There is one man—a physician—who has probably been doing more to stimulate the medical profession to get busy to get into the Medical Reserve than any man in the United States, and we are lucky to have him with us today. We are waiting for three distinguished Englishmen who are on the way and will be here in a few moments, and while I do not prefer to call Dr. Martin—Colonel Martin—to fill in time, I will ask him to speak to us with the understanding that I may interrupt him and

ask him to finish his speech later. (Applause.)

COLONEL FRANKLIN MARTIN: Mr. Chairman, Ladies and Gentlemen of the Massachusetts Medical Society: Your President or anyone else need not apologize for calling me doctor at this time. Our degree of medicine dated far back of our degree of lieutenant, captain, major or colonel. The degree of colonel was secured in an hour; the degree of doctor came after years of work. It fills one with emotion to speak to an audience of New England. The sons of New England, with her Puritanism, her reputation for righteousness, and her reputation for intellectuality, have always been ready to fight for their country. You have been the first in all of the wars worth while and you have been first for 400 years. I wonder if there is anyone complacent at this time in regard to what we are facing? Has anything occurred during this war that should lead you to be complacent at this time? Do you know of anywhere that we have succeeded sufficiently to make us self-satisfied? Do you know of anywhere, on the contrary, that we have not practically been on the defense? Is there any reason why at this time we should be complacent? I wonder if we are laboring under a false security, a sense of false security caused by some insidious propaganda. Is that possible? Boston was in this fight early. Boston medical men were practically the first to reach France of all soldiers of America. Boston sent her two base hospitals early. Harvard helped the Allies before we were in war. One of the most impressive things of my life was at the time of the visit of Sir A. J. Balfour and his party. It was at the White House—that occasion that everyone who was present will remember; especially will the Englishmen remember. Instead of it being a banquet, a festival, it was a thanksgiving service such as you would have had in an old city of Virginia. The marine band wasn't there. There were no announcements of names. Our chief walked about the great room, introducing himself and his wife to his guests. We went to the dining-room, no speeches, everything quiet, everything befitting the time. Two weeks, one month after we had entered the war, Mr. Balfour said to me when he heard my name introduced, **not as Major Martin**, but as Doctor Martin, he said, "Doctor, have you anything to do with getting doctors for this conflict?" I said, "Mr. Balfour, I have quite a little to do with that." He

said, "Would it be possible for you to send us some doctors?" "Yes, Mr. Balfour, it would be possible for us to send you doctors; how many do you want?" He thought a minute and said, "Could you send us 1000?" Having no authority from the Secretary of War or anyone else, in my enthusiasm I said, "Yes, Mr. Balfour, we can send you 2000." (Applause.) He called General Bridges, who has since gone back and lost his limb and is now in Washington, and we soon arranged that we would sift into the English army 200 doctors a month, and at that time within three days we had arranged to send our six base hospitals, one or two of which came from your city. I wonder if you realize what that meant to the British army at that time—that thin army that had been holding back the horde of Huns, those men who were bound to burst through; and Great Britain had not ten doctors to the thousand men working at the rear, but only three,—three doctors where she should have had seven or ten. Those doctors were working sixteen hours a day and still working to care for their wounded and to care for their sick. To France at that time we sent 2000 ambulances and 5000 enlisted men. England now wants 2000 doctors within two weeks. I received that message from the Surgeon-General of the British army, from Lieutenant General Goodwin, not official, "Martin, I wish you could send me two thousand of your splendid men." That was after this drive had begun. France is worse off than England. Every medical man in France is in uniform or is available for service, and they have too few men, and the civilian population is practically without physicians. We have in this country 145,000 doctors. Ten thousand of those doctors are women. Three thousand of those women have offered their services and have been classified; those who have offered their services and are in a position to do work in every case that will supplant a man. (Applause.) X-ray, laboratory work, anesthetics, dressings, those things can be done at the rear, can be done out of danger—not that women are seeking that (to avoid danger), and can be done just as well by women as by men. (Applause.) I hope within a short time to have women recognized (applause), and to have them obtain the same rank for the same work done that is received by the men (applause), and, fortunately, I believe that our chief, General Gorgas, is in favor of the same thing. Gen-

eral Gorgas, as you have been told, has asked for 5000 doctors before the first of July. That was the first of April. We have practically that number in sight by the first of July, but we want 2000 more after that by the first of January, and Admiral Braisted of the Navy wants a least a thousand by the first of January and more after that time.

This is our busy day; this is the time that it would be worth the while of anyone to visit Washington, where the so-called swivel-chair warriors are working. One of the greatest transformations that has ever been made in any city has occurred in Washington within the last year. Do you realize there are 17,000 men working in Washington today without compensation? The strongest men in their various activities of all the men in the country? Do you realize that all the waste spaces are covered with temporary buildings to house these men? Do you know these men were asked to come there to supplement the little bureaus, the peace-time bureaus that were in existence at the time the war began, and that these strong men have supplemented these bureaus, and have made each department as strong as it is possible for the department to be made? Do you realize that these men, who are working for a dollar a year, are not time-servers, are not working 8 hours a day, from 9 to 4 or 5, but they are working sometimes 16 hours a day to do the work? Do you realize that the loss, the waste, in that great army in Washington, that great patriotic army in Washington, is probably greater than the waste in the trenches? Do you realize that when these 17,000 men were called there, no one asked from what party they came? Do you know that when the Council of National Defense selected the advisory commission—Gompers, Coffin, Willard, Godfrey, Rosenwald, and the rest, that no one enquired their politics, and when it was finally determined it was found that three of them at one time belonged to one party and three to the other party, and one they have never been able to determine his politics? Do you realize that when the waste comes, when Coffin and men of that type are eliminated because of overwork from this terrific strain, that when their places are filled by Ryans, Hurleys, Schwabs, Stettiniuses, Tafts and others, that no one asks their politics? Do you realize that a new way has been adopted, a new plan is in existence, that men are asked be-

cause of their worth, and no one ever asks their politics and no one ever thinks of asking what he is to receive? I believe, after watching affairs in Washington, that we are in very safe hands. I believe that this new way is the way that will win out. What about our jobs? The Council of National Defense—the Advisory Commission? First, the machinery is this: The medical representatives in the Advisory Commission appointed the General Medical Board, which is the clearing house for medicine in Washington. On this Medical Board are represented the Surgeon-General of the Army, the Surgeon-General of the Navy, the Surgeon-General of the Public Health, the head of the Red Cross, and the civilian doctors. The General Medical Board meeting each month discusses the problems of medicine. After discussing the problems of medicine, the next day those problems are brought down to the Executive Committee of the General Medical Board, consisting of the three Surgeon-Generals, the head of the Red Cross, Dr. Welch, Dr. Vaughan, Dr. Simpson, and myself. There the policies of medicine are discussed and decided upon and then sifted down to the various bureaus represented there to execute the work. While the General Medical Board is an advisory body, and much has been said about purely advisory bodies, I hope you realize that an advisory body would not last one month if its advice wasn't of such a quality that it would be accepted, and with such a board and such an executive committee, an executive committee that really deals with the activities of the Government, our advice is usually accepted. Now in order to set working the machinery, in order to carry out the work that is created by this machine or is demanded by that machine, we have one other thing—we have in each State a Committee on National Defense. You have in the State of Massachusetts one of the strongest committees. That committee is organized just as they are attempting to organize things in Washington just now—purely non-partisan, purely non-political, entirely free from any kind of a domination; in order that it should be so that the committee may work more efficiently we asked that representatives of the great societies should be put upon this committee. We are now asking that you add to that committee at least one or two women. We have added to that committee in most states one or two homeopathic physicians, so that this great committee of 15 to 35 is thor-

oughly representative and is able to carry out in each State the program which we laid out. Now in each county we have another committee. This committee is an auxiliary committee, that is made up practically on the same basis. Now it is possible and it is necessary at this time for this committee in the State through its county-committees, as you have done in your State, to make a careful survey of every part of the State, and to say who shall remain at home and who is available for service at the front.

That now brings me to the question of service. Every man under 55 should make application for service in the Reserve Corps. After he has received his examination, if for any reason he is rejected for physical reasons, he is then available for another corps, which is called the Volunteer Medical Service Corps. After he has been accepted, if for any reason he is considered necessary for service at home, and that must be determined not by himself but by a committee of peers, then that man can be eliminated from the Reserve Corps, and he also will be eligible for the Volunteer Corps. All women will be available for the Volunteer Corps until such a time as they are accepted for service in the Reserve Corps. That then, as you see, with men over 55 available for the Volunteer Corps, we have a place for every individual doctor who is not available for the Reserve Corps, including the women, and we are very desirous that every man who is not available for the Reserve Corps and who has been exempted for institutional reasons or for any other reasons shall join the Volunteer Service Corps.

DR. WOODWARD: I am going to ask for a recess because the Englishmen have arrived. (God Save the King sung).

COLONEL MARTIN: Mr. Chairman and distinguished guests: Only one minute: the seriousness of our situation is demonstrated in the fact that the British Government saw fit at this time to send us three of their most distinguished medical men. While we may be complacent here in America, they have no reason for being so over there. I will not detain you further other than to say this: Listen to the appeal of Major Jump; enroll somewhere, in the Reserve Corps if you are eligible; if not, in the Volunteer Medical Service Corps, because we need 60% of the men organized to do work at home in the industries, and in that work the men and women who are left at home must do the work. Therefore all enroll, and don't you see that will

carefully classify all of the profession. Let us make this classification here in Massachusetts, in New England, in order that we may select the best men to do the work—whatever work is required. I thank you. (Applause.)

DR. WOODWARD: It is a great honor to the Massachusetts Medical Society to have with us today not only one but three distinguished Englishmen, I may say Englishman, Scotsman and Canadian. When I was a freshly graduated physician, and I need not dilate on how fresh I was at that time, I remember going down to the east end of London and seeing standing before me,—it isn't Mile End Road, Sir James? Whitechapel Road,—the rather frowning front wall of the London Hospital. I suppose the London Hospital deals with, at any rate it dealt with then, about as solid a mass of submerged population as any hospital in the world. It gave splendid service to the poor of London, and it is a great honor to sit on the same platform with, and more of an honor to be able to introduce to you Sir James Mackenzie, whose work at that hospital and whose work in England is as well known here as it is at home. I introduce to you Sir James Mackenzie.

SIR JAMES MACKENZIE: Mr. Chairman, Ladies and Gentlemen: I have a great feeling of affection for Boston because it was in Boston in Lincolnshire that my wife was born (applause) and it was a blessed day that I met her. Well, I don't know exactly on what line I shall speak, but I shall take my counsel from what Dr. Martin said about joining the Army. I think it would be well for those who intend to do it that they should do it soon because preparation is imperative. You will not be needed just at once, but then you will be preparing for the great event that is bound to come. You do not realize what we have gone through, and it will be two or three years before you get to the condition we are in at present. That is to say, every home in England where there are young men has been changed by losses of the severest kind, and there are great numbers of wounded and men who are broken down in health by the strain of war. I must confess that this war has found the medical profession not as well fitted for their duties as they themselves thought, or as the States thought. You must bear in mind that we have had to go through years of grim experience to obtain the very little knowledge that we have acquired. That knowledge is at your command,

and those of you who join up now will have short enough time to prepare yourselves for the great difficulties which will meet you in the coming years. I shall not deal with the surgical question, my able colleague will deal with that, but I will just point out to you one or two matters connected with the Medical question which have revealed to my mind what I shall call the ignorance of the profession or lack of realization of what medicine meant. When the war broke out in England, of course, only the very healthiest were taken, and the impaired were rejected: as the times got more strenuous these impaired got called upon for military duty, and finally, when the conscription arose, men of all conditions of health were required to enroll in the army in order to undertake duties which they would be fit for. Now here is a point I want to bring to your attention: Our military authorities drew up the regulations for the enrollment of these impaired individuals, and of course any person can sit down in a chair and make six classes of impairment, of a slight degree and severe degree and a degree for rejection. Men are fit for garrison duty at home: for labor duty at home: for office work at home and office work abroad; and in that way we get six degrees of impairment, and it all looks very nice, but it struck me at once that there was going to be a failure, because who is going to say a man is fit for those duties? If you will think for a moment, those of you who are surgeons or hospital surgeons, what experience have you got that entitles you to say that a man is impaired for duty in civil life? We as general practitioners have always had to fight with that question from the day we entered practice. It is a question that is continually cropping up, but it is a question that is never mentioned in the schools, and there is not a man in the schools that is able to teach you what a man is fit to do who has got an impairment of one organ. Yet they thought it was an easy thing, that the knowledge was there,—but the knowledge wasn't there. What was the result? A disaster arose because so many men were put in categories for which they were totally unfit, with the result that large numbers began to break down, and the outcry became so great that this matter of recruiting had to be taken entirely out of the hands of the military body. Now that is a point which I would like you very carefully to

consider. I gave some evidence before the House of Commons committee that the knowledge didn't exist. We pretend that it exists, but nobody can tell, and I opposed, and this was a suggestion that I threw out to that committee, although my advice wasn't taken: That there should be just three categories—fit, unfit, and impaired; that the impaired should not be divided into other categories, but that they should be taken and drilled sympathetically by intelligent men, able to observe how much fatigue they can stand; that these men should be dealt with sympathetically, and until it is found that one man who could stand exercise should be drilled more, and another not so fit, less. A selection should be made. To my mind that is the only possible method, for the other plan leaves so much to the medical man who does the selecting, and he has not the necessary knowledge. So I wish to impress on you that there should be a man trained in such lines, to see how the recruits are standing training, and to find the signs and phenomena that over-exhaustion produces in a healthy man. That, of course, will come later when men from the front begin to break down, not from wounds, but from the strain of the life they have to lead, exposed to overstrain of one variety or another. The large proportion of the cases of men invalided back are men that break down on those grounds. I remember I submitted a report to the Government from a study of 500 cases of so-called heart disease which I had found among those who had returned from the front, and an inquiry at that time, in 1915, showed that one-tenth of the men who had returned from the front were men labeled as having some form of heart affection, so that of 100,000 disabled, 10,000 were supposed to have some heart affection. Now it happens that many of those with heart affections do not suffer with heart trouble alone. Ninety per cent. of the cases I examined were not really cases of heart disease, but of men who gave way from general exhaustion. The history in the large proportion of the cases was that they were perfectly healthy until some infectious disease, some febrile complaint such as diarrhea, measles, and then that they went back to work too soon or continued to work when the febrile complaint was in them, in the trenches, exposed to severe bodily fatigue without sleep, and all the difficulties of the trenches, on which I need not dilate. Now the fact that these men

break down in that way of course produced a considerable amount of discussion in regard to what was the matter with them. It is a curious thing in medical practice that if a man has an obscure complaint, if you can find one sign to attach to it, you are apt to attribute all the trouble to that sign. Also if a man had a murmur you would put down all his trouble to that murmur. As the result of my examination I found that the men had broken down from general exhaustion, that they were tired out, and you can easily understand that if a dozen men are exposed to great exertion and fatigue they will not break down all alike; one man will break down with manifestations of derangement of the nervous system, others with cardiac symptoms or abnormality in the muscular system, and in another the digestive system will give way. I've found many of the different types. An inquiry was undertaken by the Government, and they gave a hospital for the study of such cases, and the conditions were verified, and now we have got a hospital set aside for the study and training of doctors in these cases of breakdown in the service. I am glad to say that in the last few years there are doctors who have come from America who are studying this matter and have given it a considerable amount of attention, and these will be found to make a good accounting when the great strain comes. I thank you for your attention.

PRESIDENT WOODWARD: The London Hospital is a large hospital, but it is not the only hospital in London. I think in time of foundation Guy's preceded it. The time I spoke about, when I went to London, I can remember the first surgeon I saw was Lord Lister, who had just come from Edinburgh, and, to my horror, I saw him take a knife and cut the peritoneum and then take a needle and sew it up. I had never seen it done before, and I might say that in the case of an operation for hernia, Lord Lister took enough interest to go every day to dress it with his own hands.

The next speaker must have been a student at Guy's before he enlisted. I introduce Sir William Arbuthnot Lane of Guy's Hospital, London.

SIR WILLIAM ARBUTHNOT LANE: Mr. President, Ladies and Gentlemen: Doctor Martin moves us in a way that I think few men over here can do. I have known Dr. Martin for so long and I have recognized him as

one of the most capable organizers in the whole world. (Applause.) When he urges you to do a thing, you take my tip and do it. As far as we are concerned in Great Britain, I think we have shown you a magnificent example. We did not wait an hour. We started in at once. Our young men and middle-aged men and old men flung in their lot with the army. I regret they could not be taken,—there was a law limiting them. The army took the young men because it had to send them to France and to all regions, to some regions that did not differ much from the lower ones. I mean that those men have undergone hardships which you men probably will not be forced to face.

I had the honor of working with the Canadians. I was their consulting surgeon in England for a time, and the way they worked was magnificent. They worked in the most scientific way; and the way they organized their hospitals and managed their staff was a great pleasure to see. I have just been up to Toronto, and there again I have seen those men at their work. I do not think any medical body in the world could excel them; they might equal them. I think it is up to you to give them a new lease. You have been always talking about licking creation. (Laughter.) Do not let Americans say they can only talk. Let them play the part they say they can play. (Applause.) You have got one of the most magnificent men in the world, General Gorgas, to organize you. He is not a man of local reputation. He is a man of world-wide reputation. I remember in London when we gave him a dinner after his return from his work on the Panama Canal, the immense reception he got. I think we felt General Gorgas belonged to us as much as he belonged to you; not only that, I think he belongs to the whole world. General Gorgas, with extraordinary wisdom, has called for the help of every man of skill and renown in the United States. He didn't wait to be asked to do it, but he did it without being asked, and he has men whose names are household words in England. I do not consider that you are a different nation because an unfortunate English king undertook a course, and you undertook a course, and had you not taken it we would have despised you. I take it that you are as much one of our dominions as we are one of yours. Whenever I meet an American citizen, how proud he is to say "my father comes from Scotland or from

England or from Ireland"; and then, again, take your Jewish population. What has amazed me more than anything else in England is the way the Jews have behaved. We in England have always thought the Jews were one of the most noble races. Whenever there was trouble or anxiety the Jew always came forward with his money, even more with his money than ourselves, but I don't think we have ever realized that the Jew is a magnificent fighter, as the Jew is at the present time. The public schools of Great Britain are proud of the Jewish boys.

Then the question is how to deal with men. We are practically bred white. Men up to 55 are made to join. How are we to deal with those? I take it that we must deal with them along general principles, and I think that they should be dealt with along the lines of efficiency and economy. With us at the beginning of the war it was impossible to deal with them economically. We had to rush them to any sort of post. There was no chance of putting the square man in the square hole. The man was wanted, and he had to go immediately and to go anywhere. Now you must have plenty of time to organize. You have plenty of organizers, of whom Colonel Martin is certainly at the top. The question is how shall you apply those principles. I think they are to be applied in two ways—by specialism and by fixity of tenure. I mean by specialism that a man should be put to do that work for which he is fitted. It is no use to put a gynecologist to do throat work. Then it is an important thing to have fixity of tenure. I can illustrate that by my experience at the largest military hospital in London. When we began, our hospitals were sieves through which our young men rushed to the front. They stayed there for a week and then went. They never could call their souls their own for twenty-four hours at a time, but it became known at once that that procedure wasn't best for our soldiers. So we tried the fixity of tenure, and the man that was best fitted to do fracture work or abdominal work or head work was kept on the job and we put them into one hospital, and the medical men in the same way, and then we took these men to train the young men, and these young men were instructed in the ways of army routine. As an example of the advantages of this institution, I will point out one that has happened during the war. Before the

war we knew nothing of terrible lacerations of the face and jaws. My only experience was in Vienna, where they had made new noses for the men and women whose lovers had bitten them off. The plastic surgery was efficient, and you can quite realize its importance. But now this has assumed a terrible aspect. The man or woman bit off her lover's nose so as to render that man or woman repugnant to the opposite sex. Now we have boys coming home from the front impossible of recognition, coming home to a mother who, with all the loving heart in the world, looks at her child with horror. The wife does not see anything of affection, and the man's children run away in horror. You picture the attitude of that man and realize that it is up to you to do your best for him, as we have done our best for him. For instance, not far from London we have instituted a big, brilliant hospital where we have got British, Canadians, Australians, New Zealanders, and within the last week we have got keen American and Canadian dentists, all working in competition to restore their men to their original form. We have got artists who are striving to restore anatomy to what it was before. We have got sculptors who are making in plaster from photographs models of the faces as they should be. We have got the most expert surgeons and dentists, who are making for these people faces, jaws, noses, eyes, ears, and often the entire face, to resemble as far as they can these plaster models that have been made by the plaster man and designed by very skilled artists. At the present moment you have got no wounded there, and I don't know whether General Bradley, who is your D.M.S. in France, will allow them to go, but I hope he will, because it gives them an enormous advantage. Every year has been marked by an extraordinary progress in this work. The work that has been done within the last four years is exactly like that for the aeroplanes of the two different dates, and I need not tell you that the differences are enormous. I hope General Bradley will allow you men to go there and to take a share in the work and to learn the work at the level it has reached now. You couldn't imagine a more happy group than these men. They are providing the greatest stimulus for progress, and that is competition. We first took British, and then the Canadians and Australians, and then the New Zealanders and every addition has added to the rapidity of

the work, and I know of no hospital in the world that will compare with the Queen's Hospital. And the work that is done is all new. In the past, except for jealous men and women, these deformities did not exist. It is extraordinary to see the jaws built up by the dentists. Large lumps are taken from the ilia or the ribs to fill in a gap; a nose is built from a rib. We turn down a flap from the forehead and make holes in it for the nose and eyes; for you see a large number of these people had their faces destroyed by the flames, which burned out the skin and left a dense outer cicatrix, which has got to be replaced by new skin.

Before I stop I ask you again to follow Colonel Franklin Martin's lead and remember your old boast that the Americans can lick creation, and don't eat your words.

PRESIDENT WOODWARD: I wish to introduce to you the third member of this distinguished group, Colonel Herbert Alexander Bruce, who does not come from the other side of the Atlantic, but from Toronto, and is now consulting surgeon to the British army in France.

COLONEL HERBERT A. BRUCE: Mr. President, Ladies and Gentlemen: I believe one of the objects of the morning meeting is to enlist the services of as many medical men as possible for over-seas' duty. My distinguished friend and colleague, Sir Arbuthnot Lane, in speaking of the work of Surgeon-General Gorgas and Colonel Franklin Martin, spoke as if you had only recruited men on this side of the water. I presume he did not wish to leave you with the impression, because he would have been unmindful of the fact that when Mr. Balfour last year asked your Government for help you immediately sent to the assistance of Great Britain six magnificent hospitals, and these were on the ocean within a week of the request, and I am glad to say from personal experience I can tell you of the efficient work that they are doing for us in France. I have had the pleasure of visiting all of these hospitals, beginning with the one that you sent several years ago with one of your distinguished surgeons, Lieut.-Colonel Cabot, which has done such splendid work for all these years. You added on the last occasion another Harvard unit, with Major Harvey Cushing in charge of the surgery. I need scarcely tell you that the work he has done to help us has been magnificent. He has stimulated the interest in development of brain surgery until now our men who are unfortunate

enough to be wounded in the head receive the best care and skill that can be given them anywhere. Then we have with us one unit from New York, which happens to be in my area, with Major George Brewer, the well-known surgeon of New York, in charge of the surgery. He has since been taken to the expeditionary force, leaving in his place a competent officer in Major Darrach of New York, who is now carrying on the work, and that unit, I may say, has established a reputation second to none of the British expeditionary force in France. We have a unit from Philadelphia with Major Harte and Major John Gibbons, who are well known to you all. We have a unit from Cleveland with Major George Crile, who has done so much to help us in the work of blood transfusion, and has made it one of the most popular and one of the most beneficial things for our wounded in the advanced dressing stations in France. I might tell you that this has now become so easy of application that we simply collect a quantity of blood from Group 4, Lee classification, mix it with citrate and normal salt solution and put it in the ice-chest and keep it until required. The blood so preserved is quite good and efficient for at least a month. So that recently with the advance of the attack of the 26th of the month in some of our C. C. S.'s, though we had stored many of these receptacles of blood, they were used up in our hospitals, showing what a great help it has been in cases of severe hemorrhages and hemorrhage associated with shock. Unhappily, in those hospitals which we lost to the Hun, he would get with other things a quantity of blood. Major King made the remark that he hoped they would use it, and that it would improve the quality of the Hun blood. (Laughter.) We have also a unit from Chicago under Major Besley and a unit from St. Louis under Major Fred T. Murphy. All these doctors, with the others whom you have sent to us for work in the advanced lines with the nurses, God bless them, are greatly appreciated by the British Medical Service. And before leaving France, Sir Arthur Sloggett asked me to convey a message to America of his appreciation and the appreciation of the British Medical Service for the extraordinary good work that your doctors and nurses are doing for our sick and wounded in France. He said nothing was too good for the American doctors and nurses, and he didn't know what we should have done without them

during the past year. My first experience in this war was with the Canadian forces, and there I met hundreds of your countrymen who forgot all about that imaginary line and came over to join the Canadians and add to their lustre on the field of battle. During the year and a half that I have been with the Imperial forces I have had many and varied experiences up and down the line from the North Sea to Switzerland, but never have I been as deeply and profoundly stirred as when I saw the dim-eyed and grateful faces of the Parisian crowds look with thanks too deep for expression, too sincere for demonstration, at the entry into their city of General Pershing and his staff. (Applause.) You know quite as well as I do what a shock your forces have given to the Hun in the few encounters they have had on the Rhone during the past few weeks. The Kaiser sneered when America entered this war, and said that the weight you would throw into the balance would not be more than a straw. Mr. Bundidge replied that he quite agreed with the Kaiser's estimate of what America would do, but he would like to prophesy that it would be the last straw that would break the camel's back. (Applause.) From the account I have seen this morning of a speech made yesterday by Mr. Bonar Law, he refers to the arrival in France of large numbers of American troops, and he makes this significant statement—that America is not only coming into this war, but that America has come into the war. And while Britain and France have been holding that long line and will hold it until you have been able to get over in sufficiently large numbers, we all feel the utmost confidence that the worst is now over, and that it will be only a few months before, with the assistance that you will be able to give us, we will be able to inflict a decided defeat upon the enemy and secure the peace which we are all looking for. (Applause.)

If I were to be asked as to the most important military developments at the front during the past year, I would place near the top of the list the creation of a generalissimo to command the united forces and of the brigading with the British and French of your troops into a strong, united and compact army, and next I would put the stupendous war machine created in peace-loving, unprepared Britain since the war began. Consider these facts: The munition factories of Britain now put out as many big shells in a single day as during the whole

first year of the war; as many medium-sized shells in five days as during the whole first year; as many cannon in a week as during the whole first year. These munition factories, with an average breadth of 40 feet, have a length of 25 miles, and the buildings have been so constructed that they may be converted to profitable industrial purposes as soon as peace returns. I should like to say a word of what women have done: During the first few months of the war less than 200,000 women were engaged in war industries. Today there are 1,000,000. Of the 4,000,000 workers, they constitute a quarter, and their number is steadily increasing. All grades of society are represented in every branch of industrial life, all linked together in England's need. Social distinctions are leveled in the democracy of overalls and caps. A woman worker who had lost her husband at the front, took a day off and then returned to her work. The superintendent of the works saw this inscription in the evening chalked on one of the lathes: "Done fourteen today. Beat that if you can, you devils," referring to the men, of course. The girls handle the deadly T. N. T., and the still more deadly fulminate of mercury with a steadiness of hand and a smoothness of movement that has shown them to be superior to men in very many industries. Women are engaged in 475 different munition processes: aeroplane manufacturing, the making of howitzer bombs, shrapnel shells, military tools, agricultural implements, marine mines, and even ship-building. I should like to say this: That Britain's navy, of course, is her pride, but her brethren in Britain's merchant service are also heroes in this war. (Applause.) Every week 5000 ships sail to or from her harbors, while she has loaned 600 ships to France and 400 to Italy. These ships have carried 8,000,000 men and 10,000,000 tons of war material. Notwithstanding the submarine, her merchantmen are sailing the seven seas. "We will make every ship sailing through the North Sea sink," said Hindenburg. "Nay, nay, make it boil like the caldron of hell"; and they have still sailed, and still do.

In conclusion I will recall an incident of that expedition which Britain sent to Ashantee, when a colonel of the Scotch Guards said to his men: "I will not command any of you to go on this expedition; there will be suffering, there will be hardships, there will be misery, and there may be death. Let every man who will

volunteer to follow me, take one pace to the front." So saying, he turned his head so as to give them time to think and act. On looking around a flash of indignation fell over his face as he saw the line was as solid as it was before. Turning to his men he said, "My God, the Scotch Guards and not a single volunteer." A sergeant sprang out of the ranks, touched to the quick by the rebuke, and said in a voice so loud that all could hear, "Sir, that whole line stepped forward." (Applause.)

Ladies and Gentlemen: What a great thing it would be for the nations of which we are citizens, for the homes that we represent, for the principles for which we fight, yea for the very kingdom of the Highest itself, if we could all catch that vision and, looking into the faces of the generations which are to be, say to them, "This has been a bloody business, but the whole line of civilization has stepped forward." (Prolonged applause.)

Original Articles.

THE PRESENT NEEDS OF THE TUBERCULOSIS CAMPAIGN IN MASSACHUSETTS.

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

There is an old Latin motto, "Nosce te ipsum," in plain English, "Know thyself," which might well apply to the present needs of the anti-tuberculosis campaign in this State. The great need in this campaign, it seems to me, is a clear, accurate, and detailed knowledge as to exactly what our tuberculosis problem is, and the machinery and equipment at our disposal to combat it. I would briefly summarize our present needs therefore as follows:

(1) Knowledge as accurate and up to date as possible, as to how much tuberculosis there is in Massachusetts.

(2) Equally clear and accurate knowledge as to the machinery and equipment at our disposal to handle it.

(3) Coöperation of all forces, state, municipal, and private.

THE AMOUNT OF TUBERCULOSIS IN MASSACHUSETTS.

There were 4638 deaths from pulmonary tuberculosis in this State during 1917. This

would indicate that there is at least twice this number of consumptives in our midst who are urgently in need of treatment of some kind, and probably institutional treatment, and a far larger number in need of educational and other measures to prevent their latent tuberculous infection from becoming active tuberculous disease. This, in brief, constitutes our tuberculous problem.

MACHINERY AND EQUIPMENT FOR HANDLING TUBERCULOSIS IN MASSACHUSETTS.

Our methods for handling tuberculosis may be divided into two parts. First, those methods that are purely administrative, dealing with large numbers of patients, rarely with the individual; and second, those methods that are purely clinical, resting in the hands of the medical profession, either in private or dispensary practice.

Massachusetts is indeed fortunate in its equipment against this disease. We have four state sanatoria, North Reading, Lakeville, Westfield and Rutland, with approximately 1000 beds. At the Rutland Sanatorium, which is reserved for incipient and favorable cases, every patient admitted is on trial for one month. If, at the end of that time he is found to be unsuited for treatment at Rutland, he is transferred elsewhere. There is a two-year limit of residence. At the other three institutions, patients in the incipient and moderately advanced stages are taken. Far advanced, active and progressive bed cases are not admitted if the facts are known beforehand. Unfortunately, such information is not given as often as should be the case. At the Westfield Sanatorium, children from all over the State are received and given schooling as a part of their treatment, when their condition warrants it. The cost of board at our State Sanatoria is \$4.00 a week, to be paid by the patient, or in case he cannot pay, by the town in which he has a local settlement, and in case of no settlement, by the State.

In addition to our sanatoria, there are 350 beds at the State Infirmary at Tewksbury, intended for so-called "state" or non-settled cases. There are likewise beds for consumptives in certain other state institutions, such as the State Farm at Bridgewater, and the Prison Camp at West Rutland.

There are 26 municipal tuberculosis hospi-

tals scattered throughout the State, with a total of 1500 beds. These municipal hospitals perform the very useful and important function of caring for advanced and progressive cases who should be near their relatives and friends, for emergency cases, and for certain others awaiting admission to a state sanatorium or elsewhere. For indigent patients with local settlements, treatment is usually free. For outside cases the usual charge is \$10.00 a week.

In addition to state sanatoria and municipal hospitals, we have one county tuberculosis hospital in operation, one about to be opened, and others in process of construction. The Hampshire County Sanatorium has now been in operation for over two years. County tuberculosis hospitals are intended for consumptives from the smaller towns and villages where beds in a local hospital are not available, for patients who are too sick to enter the state sanatoria, or who need treatment while on the waiting list. The Barnstable County Sanatorium at Pocasset is about to be opened and will be of immense assistance in caring for many distressing cases in the scattered villages and hamlets in the Cape district. The counties of Essex, Middlesex, Plymouth, and Bristol have plans and sites selected for similar institutions.

In addition to these hospitals and sanatoria, there are certain charitable or semi-charitable private institutions, notably among which are the Channing Home and the House of the Good Samaritan in Brookline, and the Pendergast Camp in Forest Hills. These institutions are extremely useful in caring for patients waiting admission to state or local institutions.

Along with our state and local sanatoria and hospitals, we now have a system of tuberculosis dispensaries, where suitable patients can receive excellent advice and treatment free of charge, while of still further help is the laboratory of the State Department of Health and the numerous laboratories conducted by local boards of health where free sputum examinations are made.

This is a brief description of our machinery and equipment for combating tuberculosis in Massachusetts from the state, municipal, and administrative point of view. It is of great importance that every physician engaged in

handling this disease,—and what physician is there who does not come across it sooner or later, whether in private practice or in some official position,—should have a clear idea of the machinery at his disposal to help him and his patients.

The other part of our equipment against tuberculosis is less tangible, but an even more important one, namely, the ability and willingness of the medical profession to diagnose tuberculosis in its early stages and to institute active, detailed, and common sense treatment. Although I believe that the medical profession of Massachusetts stands very high indeed in its ability to do this, we have still a long way to go. But I frankly do not see how we are to improve conditions to any great extent, until our medical schools are doing more than they are at present in giving students detailed and practical knowledge concerning tuberculosis. At present, the largest medical school in Massachusetts, (and if I am wrong in this statement I hope I shall be corrected, but I very much fear that I am not), graduates its students and starts them on their way as medical practitioners here and elsewhere with anything but an adequate and clear idea as to the size and extent of our tuberculosis problem from the social, economic, and administrative point of view, and a still poorer idea as to how to diagnose the disease in its early stages or to treat it when diagnosed. The present fourth-year medical student can perform certain tests in the laboratory and certain experiments on guinea pigs and rabbits concerning which I am in profound ignorance. The same medical student, however, when confronted with a patient with incipient tuberculosis is very apt either to overlook it altogether or to make a wrong diagnosis, and when it comes to the details of common sense advice and treatment, is usually quite at a loss as to how to proceed. Osler, I believe it was, who once said, "Know syphilis, and you will know all internal medicine." One might well paraphrase the same statement into, "Know tuberculosis in all its forms and you will not only know much of internal medicine, but also so much more of social, economic, and preventive medicine."

A certain eminent physician some years ago, gently chiding me for what he considered my over-frank statements on this subject, re-

marked, "You must remember, Dr. Hawes, that every detailed specialty cannot be given the attention at the school that those interested in it feel it deserves." Although still regarded so by many, the fact still remains that tuberculosis and the problems that it brings up is not a "detailed specialty." The mere fact that over 300,000 men, women, and children in this country are dying of it every year, is enough to make it a problem of world-wide importance.

As far as our machinery and equipment for combating tuberculosis in Massachusetts is concerned, we find ourselves therefore confronted with the following rather anomalous state of affairs: First, a remarkably complete equipment for handling the disease from the broad administrative point of view, and second, far from complete and adequate means for handling tuberculosis from the clinical side.

COÖPERATION OF ALL FORCES, STATE, MUNICIPAL, AND PRIVATE.

When our newer sanatoria at North Reading, Lakeville, and Westfield were opened in the years 1910 and 1911, providing four or five hundred new beds for consumptives, there was hardly one of us who did not heave a sigh of relief and feel that at last our problem was approaching solution. Unfortunately, this turned out to be very far from the truth. We found that although these new sanatoria were immediately filled, patients left them and were taken home by relatives and friends at the stage of disease when they were most contagious and most harmful to those about them. Thus, the need for local tuberculosis hospitals became apparent. Gradually these have been built, so that at the present time practically every large city in the State, with the striking exception of Brockton and the still more striking exception of Lowell, is provided with fairly adequate quarters for advanced and active cases of tuberculosis.

Having reached this state of affairs, again most of us felt that we had made a great step in advance and that this time, surely, we were going to see immediate and striking results in a falling death rate. Again we were disappointed, and now we are taking the next step, that of building county tuberculosis hospitals to fill in the gap that exists between local hospitals and state sanatoria, and to provide ac-

commodation for patients coming from the smaller towns and scattered agricultural communities.

After the war is over, when these institutions are in active operation, I feel very sure that most of us will once more be lulled into a rather false sense of security, feeling that at last our job is done. As far as the number of beds is concerned, Massachusetts will then be amply supplied, but we certainly shall not have approached the solution of handling tuberculosis in Massachusetts unless all this splendid equipment is in smooth running order, and unless every part of this big machine, no matter how small, is made to realize, and to realize clearly, that it is not an isolated unit, but an integral and necessary part of the whole.

At the present time this is not altogether the case. One large city, for instance, has a splendid tuberculosis hospital, but up to date, at least, this same city prefers to run this hospital rather as a sanatorium and as an independent unit, regardless of what the rest of the State is doing. Certain boards of health have persistently maintained their own ideas as to handling tuberculosis, which ideas are at utter variance with the policy of the State of Massachusetts. Fairly long experience has shown our State policy to be a proper one and one that has put Massachusetts in the forefront in this country.

The work of Miss Bernice W. Billings, who, in 1912, under the supervision of the Trustees of Hospitals for Consumptives, started to investigate the condition of every patient discharged from our sanatoria, has had far reaching consequences. When she began her work, the condition of the discharged sanatorium patient was a somewhat deplorable one. He was left distinctly to his own resources and to work out his own salvation as best he could. If his courage and intelligence were of a sufficiently high order to enable him to learn the lessons that he ought to have learned while at the state sanatorium concerning his future welfare, well and good. If, as far more frequently happened, he was quite unable to do this, he soon relapsed into his old condition, and the money which had been spent on him by the State was wasted. This was certainly not altogether his fault, nor was it the fault of our state sanatoria, which have

been blamed too often for this state of affairs and have been pronounced inadequate and inefficient because of these same relapses. The course of a consumptive from the time his case is diagnosed to the time he leaves the sanatorium to go back to his home or elsewhere, should be a smooth and uninterrupted one. When Miss Billings took up her work, she found that this was not the case. The patient's stay at the sanatorium was uneventful enough, but on discharge he found himself thrown back to his old quarters, usually unsanitary, to his old work, for which he was often unfitted, and without proper medical advice and supervision.

Thanks to the work Miss Billings has done, and now in her new position in the State Department of Health with a corps of nurses under her supervision her work will be amplified, and thanks to our tuberculosis dispensaries, which at last have been put in operation, I believe that the outlook for future health and happiness for the discharged sanatorium patient will be vastly improved. This improvement is chiefly to be the result of coöperation. Our state sanatoria must realize that their function is not done, and their duty is not completed when they discharge a patient from their doors with the disease arrested. Local boards of health and tuberculosis dispensaries must realize equally strongly that their duty is not done, but has only commenced, when they file application for a patient's admission to a state sanatorium and when they receive word that he is finally admitted. And of particular importance, the private physician must use more aggressive measures in the future than he has in the past in seeking out his discharged sanatoria patients, in examining the other members of the family, particularly children, and in seeing that the patient returning from a sanatorium is kept under some sort of supervision, even if it is against his will.

Some years ago, Richard Cabot said that the time had arrived when a case of typhoid fever was looked upon as a disgrace to a community, because it meant both dirt and ignorance. The time must come, and I hope is approaching, when there will be a similar feeling concerning tuberculosis, because this certainly, even more than typhoid, implies both dirt and ignorance.

We have already reached the point where the courts will back up health authorities in using force, if necessary, to quarantine cases of scarlet fever, small-pox, and diphtheria. It will not be long before public opinion will be aroused to the point when it will feel in a similar way toward the forcible detention of the careless, ignorant, and incorrigible consumptive. We will not reach this millennium, however, until all of us who are giving our time, strength and energy to this cause, are united in one common aim working shoulder to shoulder, to stamp out this disease.

In the preceding pages I have tried to amplify the three great needs of our tuberculosis campaign in Massachusetts. These, as I said before, are briefly:

- (1) Intimate knowledge of the amount of tuberculosis.
- (2) Equally intimate knowledge of our machinery and equipment against it.
- (3) Coöperation of all forces, public and private, municipal and state.

In conclusion, I should like to emphasize the following points, based on the three general headings that I have given above:

1. The medical profession in its private or public capacity should have a clear idea as to the extent of our problem, which, in brief, is that nearly 5000 persons in Massachusetts die of pulmonary tuberculosis each year, which means that there are in our midst, fully 10,000 patients in the active stages of the disease needing adequate care and treatment.

2. There should be an equally clear idea as to our equipment concerning sanatoria, local and county hospitals, private sanatoria and hospitals, dispensaries, etc.

3. Physicians and health officers should remember always that each one is a part of a big machine and not an independent or isolated unit.

4. The duty of a local board of health or private physician is not ended when a patient is admitted to a state sanatorium or to a local tuberculosis hospital.

5. The care and supervision of discharged sanatorium patients is one of the most important lines along which progress can be made.

6. We must all of us try in every way to develop a hearty spirit of coöperation; we must realize that we are all working together for one big end, and that to accomplish re-

sults, the wheels of our machine must run smoothly and with as little friction as possible.

7. It is the duty of every one of us to help to develop public opinion to the point when the dangerous and incorrigible consumptive can be accorded the treatment which he deserves. We must not, however, allow public opinion to reach the point where every person who is unfortunate enough to contract tuberculosis, is looked upon as a leper and ostracized from society; finally, I would urge that we remember at all times, and particularly those who are doing purely administrative work, that we are dealing with human beings who happen to have pulmonary tuberculosis, and not merely with "cases."

EPIDEMIOLOGY OF TYPHOID FEVER IN A NEW ENGLAND CITY.

BY D. M. LEWIS, M.D., NEW HAVEN, CONN.

IN no other field of preventive medicine have more brilliant results been obtained than in the reduction of typhoid fever by elimination of polluted sources of drinking supplies. Together with milk-borne epidemics of frequency, these factors represent the usual causes for investigation of all communities which have any continued yearly frequency of the disease. In being unusual but equally satisfactory from the standpoint of results, I believe the demonstration that a high frequency may show another factor is of especial interest and value from the standpoint of a Northern city.

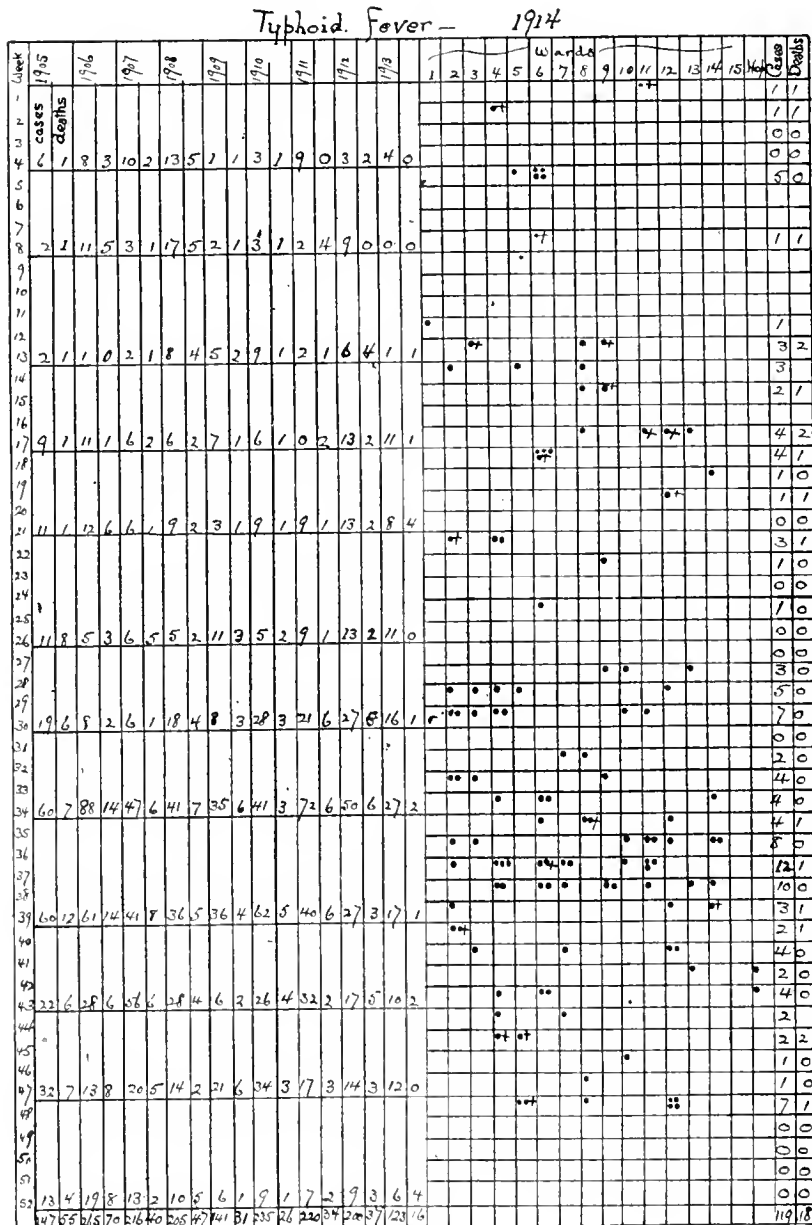
Beginning the study of this disease in 1914, there was a very definite record of a past history, which was divided in two parts; the first comprised a period of twenty-five years following the incorporation of the Board of Health, 1872, during which period the yearly reports of the Board were almost entirely devoted to privy vaults, cesspools and typhoid fever. In 1885 there was made a survey of the city, which extended through the following two years and showed the following facts: There were 21,600 houses on sewered streets that were not sewer connected. There were 7771 outside privies and 4794 cesspools. As records of Prof. William H. Brewer and Dr. C. A. Lindsley, the two ablest sanitarians in the history of the city, the relation of such to typhoid

fever was most convincing. The second period was one of complacency. In 1897 there had been abolished 1236 of these privies and 164 cesspools. In 1914 it was estimated that there were but 100 privies existing on sewered streets. During this latter period, in 1901, there had ensued a water-borne epidemic of typhoid, which resulted in making the sources safe by cleaning off all habitations from the watersheds. There was also on record an institutional epidemic, where defective sanitation of the premises was found causal. The report was unsatisfactory to the county authorities who had charge of the institution, and an outside expert, on investigating, reported that the evidence was clearly from neighboring vaults and flies. In that this factor was on record then for the first time, and because of the later absence of such findings, it is emphasized for its bearing on this paper.

At the end of the first year's work, 1914, the general impression that the larger proportion of the typhoid was from privy vaults was fairly evident from the distribution of the cases by weeks and by wards and in the presence of neighboring outside vaults or outside sewer-connected hopper closets. In the absence of any milk factor both during this year and the nine previous years, which also had very generally a distribution around privy vaults, it was not until 1915 that definite results were obtained. Reporting the data on the case in the Board of Health Bulletin of this city for September, 1915, it was shown that one individual caused 13 recorded cases in a localized neighborhood where there was no record of any typhoid previous to her residence there, during the ensuing four years—1906-1909. Two of the cases were members of her own family. Removing to another neighborhood more thickly settled, there were immediate neighborhood cases to the reported number of 33 in the three following years, the next two years giving 6 reported. One further child and one boarder during the first two years of the latter residence were also cases in the family of this carrier. Well shown in the chart for 1915, this carrier was a reported hospital case in the 31st week (9th ward). She had returned from a visit of three weeks in another State to her home here, where she was ill for six days before her hospital admission. The 24 cases of the ensuing three weeks all dated their incubation period from the duration of illness to the

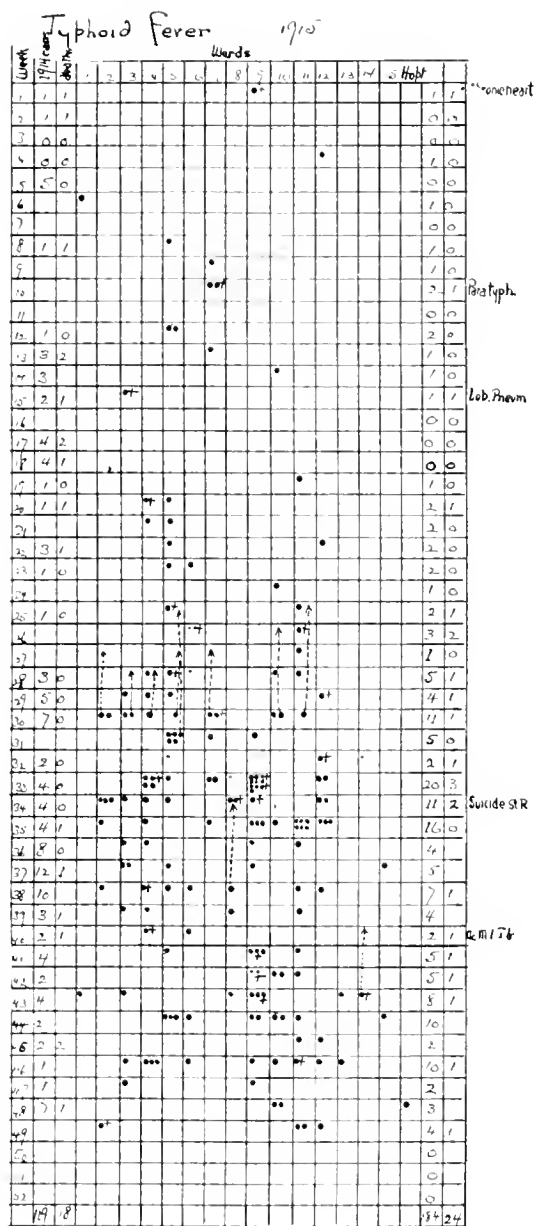
three weeks' time between her return and the date at which from the circumstances attending the first 4 reported cases the privy vault contents on her premises were covered with lime as being the probable cause of the cases. The 2 following cases of the 36th and 37th week were secondary cases. Otherwise there were no fur-

city line, so that the only statistics of the number of possible cases in the adjoining town were upwards of 6, who were hospitalized. That it was definitely a fly-borne epidemic was clear from the season, lacking respect for age (ranging from 2½ to 70), of varying magnitude in different years (she had had typhoid in



ther reported or found cases following. Further, and what is most extraordinary, there has been no further cases in that section in the three years to date, showing that as yet we have no evidence of any carriers from among a fairly large crop of cases. It is worthy of note that her residence is practically on the

1902, and 1913-1914 showed a nearly spent course, only to have the fresh flare-up in 1915, after a cholecystitis characterized as typhoid from the positive Widal), all the cases being within a quarter-mile radius contrasted with the estimated fly radius of one-half mile, the cases were scattering in distribution, and the

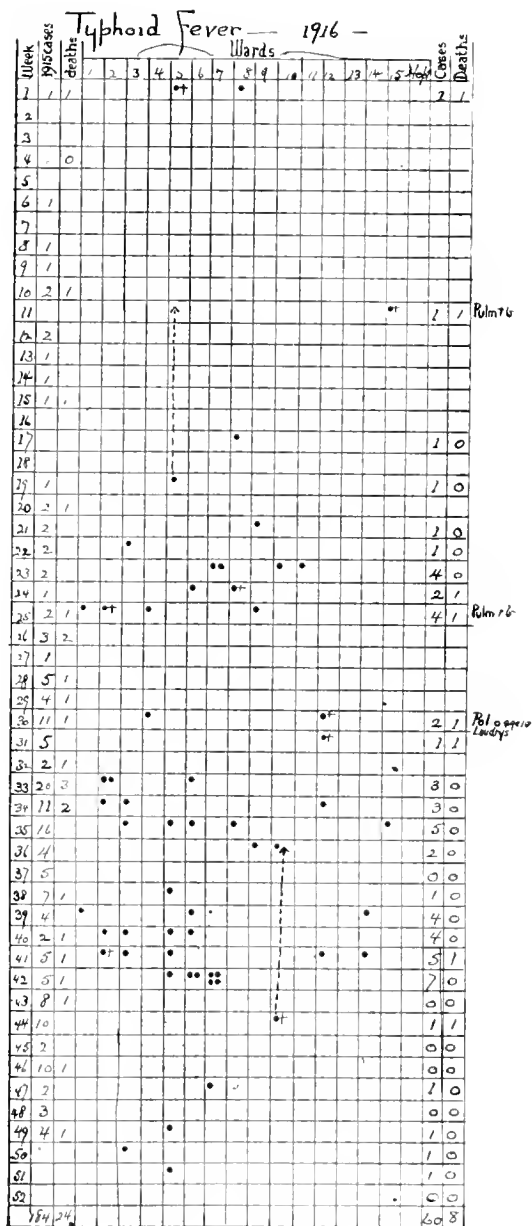


fact that those for 1915 dated to the two weeks that the fecal contents were exposed in the privy.

Although we have never had repeated such a chain of circumstances as proving our case in all instances, the reported cases in the 4th ward for 1915 were as satisfactorily traced to a neighborhood outside hopper closet, which was definitely a comfort station for a large population. The reported cases were similarly distributed as to age, sex, scattering and absence of other common factors. Ordered padlocked for family use only, the following two years has seen but 5 reported cases in the

whole ward, all of which were accounted for by other factors. As sharp were the demonstrations of the relation between cases and vaults in Wards 11 and 12, with correspondingly less reports for the following two years. Similarly, the yearly record for Wards 6, 7, and 8, all presumed sewer wards, led to neighborhood filthy outside hopper closets or to remaining privy vaults. Ward 5 alone has been a striking example of apparent house-to-house contact infection.

The logical and satisfactory end-result of our proof is that during the first half of the fifth year (1918) there have been in twenty-five weeks 10 reported cases and 1 death (an im-



obtaining good results are more numerous and less easily remedied in securing the sample than in its analysis. With trained subjects, practically any of the reliable methods will do, but for general clinical purposes with all kinds of subjects and conditions, the task is different.

Three years ago I suggested a method of collecting alveolar air² which, with its simplicity, and ease of application under all sorts of conditions, combines the desirable features of the best standard methods generally used. Little or no coöperation on the part of the subject is needed, and difficulty in collecting a sample is encountered only with subjects who are uncontrollable or of a mean disposition.

The first collecting tube I used was simply an adaptation of the one I employed in my observations with Haldane's method. It happened to be of a capacity of about 375 c. c. only. I observed then that with such a tube, duplicate samples gave more uniform results when the subject breathed for a period of 25 seconds than for 20 seconds only, and the results checked up very closely with controls taken by Haldane's methods. I might suggest here that if one considers this tube as a means of artificially lengthening the trachea, the underlying principles involved in its use, as herein explained, will be readily understood.

It was evident that one could modify the results, within certain limits, by altering either the capacity of the tube, or the length of time of breathing. In August, 1915, I made some observations (the results of which are here first published) with tubes of various capacity: 200, 400, 600 and 800 c. c. and breathing normally for periods of 20, 25, 30 seconds, 1 and 2 minutes. The tabulated results are averages of three complete sets of observations, each covering all of the combinations just mentioned. They were made on the same subject on three separate days. The samples were taken successively but in a different order for each set and with several minutes intermission between the collection of the samples.

SUBJECT: MISS L. M. August 25, 26, 30, 1915		Internal diameter of tube, 16mm. Approximate length and capacity:			
Breathing period		90 cm. 190 cc.	180 cm. 375 cc.	270 cm. 565 cc.	390 cm. 800 cc.
		mm. Hg.	mm. Hg.	mm. Hg.	mm. Hg.
20 seconds		40.0	40.3	42.2	38.4*
25 seconds		40.2	40.4	42.9	44.3
30 seconds		40.4	44.0	43.2	44.1
1 minute		43.8	46.2	45.5	49.2
2 minutes		43.3	46.3	48.4	49.3

* This figure, which is unquestionably too low, is the average of 37.5, 36.4 and 41.4.

These results confirmed my previous observation that breathing normally for 20 to 25 seconds in a tube of comparatively small capacity (about 375 c.c.), tensions quite similar to those obtained by Haldane's method would be secured.

Dr. Maude E. Abbott (McGill University, Montreal) published in 1916 a series of observations made with a tube having a capacity of about 800 c.c., and controlled by the method of Haldane. Her conclusion is that, with a tube approximately 225 cm. long and 21 mm. inside diameter (capacity about 800 c.c.), the results are similar to those obtained by the Plesch method³. They confirm the results given in the above tables.

To avoid confusion, the use among various workers of a collecting tube of standard dimensions and capacity, would be desirable. It should be of sufficient diameter, relative to its length, to allow free and easy breathing. On the other hand, too great a diameter is obviously objectionable. A tube of a capacity equal to or greater than the volume of tidal air, will give more uniform results in duplicate samples than one of small enough capacity to give as low tensions as obtained with Haldane's method.

All things considered, I recommend a tube with a capacity of 500 to 600 c.c., internal diameter 19 to 21 mm. ($\frac{3}{4}$ "). A larger tube will not alter the results materially, but becomes too cumbersome. Finally, the results obtained have the advantage of being comparable with those given by the Plesch-Higgins and Marriott methods, as well as with corresponding values obtained by direct observation on venous blood, as in Van Slyke's, Henderson's and Marriott's methods.

Recently I had the opportunity of making a series of observations on the alv. CO₂ tension of 12 normal subjects (students of the Y.M.C.A. College, Springfield, Mass.) for a period of two months, at intervals of three to five days with each subject.* The samples were taken in the morning before breakfast, and after the subjects had been lying down comfortably for approximately one half hour, a preliminary required in the estimation of the respiratory exchange of the subjects. I used a collecting

* These observations were made in conjunction with a very exhaustive study of the effects upon metabolism of a reduced ration, to be published in the near future by Dr. F. G. Benedict and his co-workers, Drs. Walter R. Miles, H. Mounouth Smith and Paul Roth, in a monograph of the Carnegie Institution of Washington.

tube having an internal diameter of 21 mm. and a total capacity of about 550 c.c.

In all, ninety observations were made, forty of which were on duplicate samples. The subjects were then so perfectly trained that dependence could be placed on duplicate analyses of the one sample only which circumstances allowed me to collect at each sitting during the second month of this observation period. With the exception of one subject, who dropped out after only one determination was made, from seven to ten observations were made on each subject in the two months.

The maximum tensions of all the subjects obtained during the entire period run from 44 to 51 mm. The minimum, from 42 to 46 mm. This places the normal alveolar CO_2 tension as given by the method here described, at 42 to 51 mm., admitting, as I believe we can without doubt, that the subjects were normal. There was no opportunity to compare the results with the Plesch-Higgins method. However, they are at least as high as in any normal series yet published.

In the 38 duplicate samples, a maximum difference of 3 mm. occurred twice only, and with the same subject the first two times samples were obtained from him. A difference of 2 mm. was obtained only once with two different subjects. A difference of 1 mm. or less, occurred thirty-four times. Thus, in 90% of this series, the analysis of duplicate samples taken successively, gave as close results as can be expected with the most accurate technique. The duplicate analyses of the "one sample series" (52 in all) gave a maximum variation of 1 mm. only eight times. In the final figures reported in the calculations, decimals are dropped and the nearest unit given, according to the accepted rule. The analysis of this entire series of samples of alveolar air was done by Miss M. F. Hendry of the Carnegie Nutrition Laboratory, Boston, Mass.

While the basal ideas of the method stand as first published, I have several modifications to suggest and more complete directions are desirable.

Results are influenced by various factors, such as the time of day, meals, posture, exercise, and whatever may alter lung ventilation. As far as practicable uniform conditions relative to these factors should be systematically secured when collecting samples. While observa-

tions can be done whenever convenient in clinical work, the ideal time for the test is in the morning, before eating. The subject should assume the position in which the test is to be made (sitting or lying) and remain undisturbed for about 5 minutes before the sample is taken. A longer period of rest should be allowed if the subject has just taken exercise in excess of a short, moderate walk.

The manner of collecting the samples and the outfit are illustrated in cuts Nos. 1 to 4. Cut No. 1 shows the disconnected parts of the collecting tubes. They are as follows from left to right:

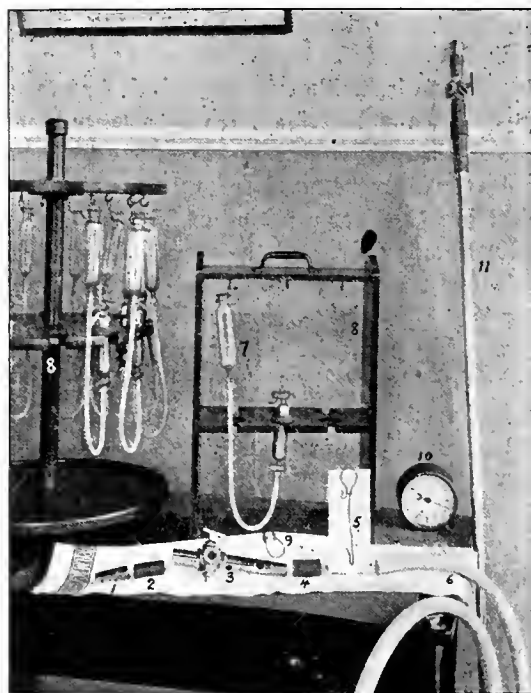


FIG. 1.

1. A mouth piece made of $\frac{3}{4}$ in. brass tubing, nickel plated, 2 in. long. Flattened to an oval shape at the proximal end, it fits the mouth better.

2. A piece of $\frac{3}{4}$ in. rubber tubing 2 in. long. This can serve as the mouthpiece without the brass tubing. It is easily removed for sterilizing. For convenience, several sets of this tubing with the mouthpiece, can be kept on hand and a change for a clean one is easily made. In rare cases, a suitable mask may have to be resorted to in place of the mouthpiece.

3. A $\frac{1}{2}$ in. 3-way brass cock, full openings, with stops. The pin on the core brings it to a stop in two positions only:—Turned to the left, Position A,—the valve is opened from the inlet, next to the mouthpiece, to the side opening; the

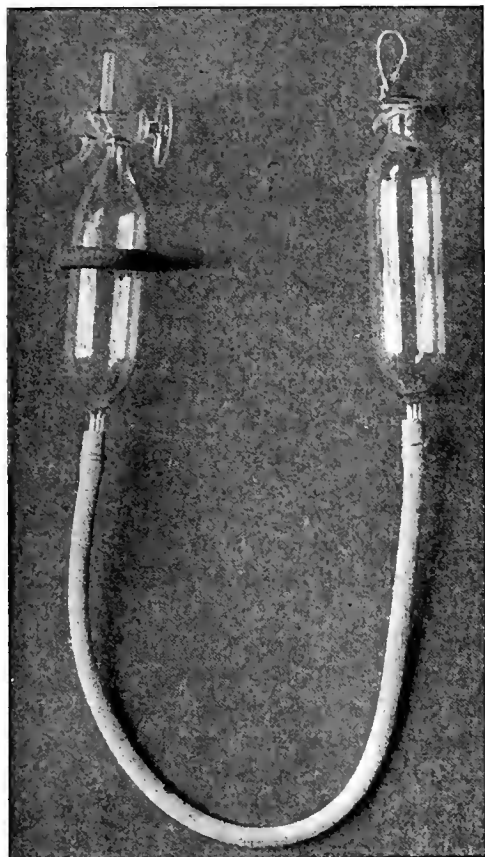


FIG. 4.

outlet on the run is closed. Turned to the right, Position B,—the valve is opened straight from inlet to outlet, side opening closed.

At the inlet is screwed a 2 in. piece of $\frac{1}{2}$ in. brass pipe: at the outlet, a piece $4\frac{1}{2}$ in. long, including thread. In this part, a $\frac{1}{2}$ in. hole is bored, 2 in. from the distal end and facing in the same direction as the side opening of the cock.

4. A piece of good quality pure black $\frac{3}{4}$ in. rubber tubing, "double wall" $1\frac{3}{4}$ in. long, with a small hole less than $\frac{1}{8}$ in. in diameter, punched with clean edges. This piece can be readily changed as soon as the small hole shows roughened edges and danger of leakage, or a fresh hole can be punched in the same piece, if desired.

5. A piece of wire, bent as per illustration, with two hooks. It measures 6 in. from the top of loop to bottom of lower hook.

6. Six ft. approximately, of $\frac{3}{4}$ in. rubber tubing. This need not be of the highest grade but should be stiff enough to hold its shape and not kink readily.

The size and length of this tubing may vary

more or less, but should be such as to bring the total capacity of all the parts when assembled, to 500 or 600 c.c.

Additional Accessories.

7. Several sets of sampling tubes. (See cut No. 4). One in each pair need be fitted with one 3-way cock only. The other has no cock.

8. A suitable rack of some kind. The illustration shows two types:—one "portable" to hold six sets of sampling tubes, and another "revolving" to hold twelve sets.

9. A nose clip is also shown on the center of the table.

10. A time piece of some kind.

11. The illustration also shows the parts assembled with a $\frac{13}{16}$ in. brass tube, nickel plated, 5 ft. long, instead of the rubber tubing. Total capacity 500-600 c.c. This type is essentially for use in the clinical laboratory. It has the advantage of being more easily cleaned, always looks neat and is durable.

Cut No. 2 shows all the parts assembled. Note that the gas sampling tube, with cocks, which has been previously filled with mercury to the very tip, is inserted through the small hole in the rubber tubing mentioned above (No. 4). This tubing has been slipped over the metal tube to bring the small opening in the rubber tubing exactly over the center of the 1-2 in. hole in the metal tube.

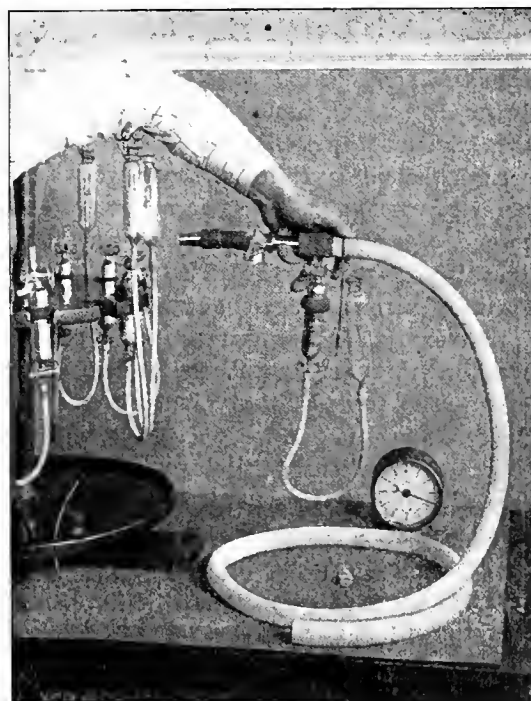


FIG. 2.

The other sampling tube, now empty, is hung on the upper hook.

The entire system can easily be held with one hand, leaving the other free to manipulate the valve, glass cock, etc., and enables one to secure the samples without the aid of an assistant.

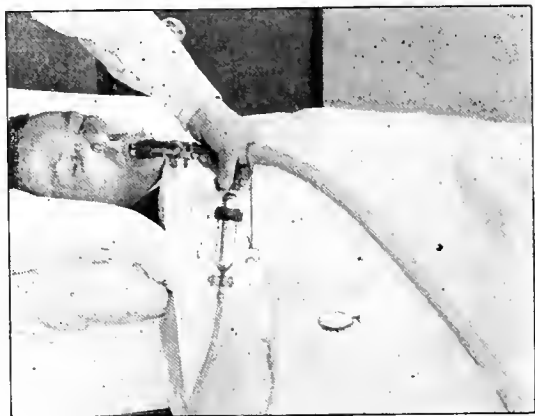


FIG. 3.

Cut No. 3 shows a convenient manner of holding the apparatus, with the sampling tubes all ready in place. This preliminary step guards against contamination of the sample during the collection of a sample of alveolar air. If taken in the sitting posture, use a chair, with a back high enough for the subject to rest the head.

The nose clip is placed on the nose of the subject to guard against contamination of the sample by the admission of air through the nasal passages.

The valve is turned to position A and the subject is cautioned to breathe normally, "not deeper than usual," and to hold the lips firmly about the mouthpiece. He is now breathing through the side opening of the valve while the operator watches the chest or abdomen, and at the end of an expiration (noting time), turns the valve to position B. The subject is now breathing through the long tube. At the end of that expiration occurring after a period of breathing through the tube of at least 20 and not over 25 seconds, the valve is turned back quickly to position A.

With unconscious subjects, with infants, in cases of facial paralysis etc., assistance is needed to keep the lips in close contact with the mouthpiece by pressing the lips together at each corner of the mouth.

At the usual respiratory rate, 20 to 25 seconds will allow 4 or 5 respirations. Accuracy in turning the valve is essential at the end of this period. A very light small feather stuck

on the edge and across the outlet of the long tube, will serve the purpose of indicating very closely, by its movements, the end of expiration. Make sure that the valve is turned rather a trifle too soon, than after the next inspiration has started.

Hang the empty sampling tube on lower hook, then open the cock of the other sampling tube. As the mercury runs out into the other tube, alveolar air from the collecting tube fills the sampling tube. Now close the cock again, remove the sampling tube and place it on the rack. If necessary, the sample may be kept for some length of time, overnight at least, for analysis.

The procedure is repeated and a second sample is secured for control; not, however, until the collecting tube has been in some way ventilated to expel the residual air from the preceding breathing. With the valve in one hand, and holding the tube with the other about two feet from the free end, and revolving it rapidly for a few seconds, will effectually ventilate the entire tube.

For choice of apparatus, technique, calculations, for the analysis, consult the following:

Haldane, J. S., "Methods of Air Analysis," London, 1912.

Pearce, Roy G., *J. Lab. and Clin. Med.*, 1918, III, 420.

Henderson, Y., and Morris, W. H., *J. Biol. Chem.*, 1917, XXI, 217.

Henderson, Y., *J. Biol. Chem.*, 1918, XXXIII, 31.

SUMMARY.

The value of the older standard methods of air analysis in the estimation of alveolar CO_2 tension and their superiority for accuracy, adaptability as well as for speed in active clinical work, is confirmed.

The correct collection of the sample for analysis is of primary importance. A simple, accurate and well tried method is described.

A standard size collecting tube is recommended and fully described.

The alveolar CO_2 tension estimated by the method under carefully controlled conditions for a period of two months on 12 normal subjects, was from 42 to 51 mm. Hg.

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¹ Marriott: *Jour. A. M. A.*, 1916, lxxvi, 1594.

² Roth: *Jour. A. M. A.*, 1915, lxx, 413.

³ Abbott, Dr. Maude E.: *Royal Victoria Hospital Scientific Reports, Series B, No. 1*, 1916, pp. 28-35.

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VISIT OF THREE BRITISH SURGEONS TO AMERICA.

DR. FRANKLIN MARTIN, Member of the Advisory Commission of the Council of National Defense and Chairman of the Council's General Medical Board, has authorized the following statement, which is of interest in connection with the addresses published in this issue of the JOURNAL.

After a tour of many American cities, which enabled them to meet and address representative groups of American physicians and surgeons, Sir James Mackenzie, noted heart specialist of Edinburgh and London; Colonel Sir William Arbuthnot Lane, veteran surgeon of the Zulu, Egyptian and Boer wars, and authority on bone surgery; and Colonel Herbert Alexander Bruce, of Toronto, now consulting surgeon to the British armies in France, comprising the medical mission sent by the British

Government to this country, have returned to Great Britain.

"In the travels of our mission through America, we have been to many centers of war activity here," said Colonel Bruce. "and we shall have a great deal to say when we get home about the marvelous and effective program which you are carrying out on so colossal a scale. I want to say that it has heartened us very much, and that we know it will hearten the people at home when we report there."

The visitors first came to Washington to pay their respects to Surgeon-General Gorgas. Thence they departed for Cincinnati to attend the annual meeting of the American Surgical Association. At a special patriotic session in the Hughes High School, Cincinnati, June 6, under the auspices of the Ohio State Committee, Medical Section, Council of National Defense, Colonel Bruce described the British system of caring for the wounded. He stated that the British have forty hospital trains in France fully equipped with doctors and nurses, each train having a capacity of 600 beds—the whole constituting a mobile hospital of 24,000 bed capacity. He paid tribute to the heroism of the field hospital service and to the American surgeons and physicians in that service.

Sir Arbuthnot Lane told of the treatment of thousands of soldiers wounded in the face, some with jaws gone, others with cheeks or noses shot away. Colonel Lane is consulting surgeon at the Queen's Hospital at Sidcup, where this facial reconstruction or plastic surgery is the special work. "The man who loses an arm, a leg, or is injured in the body, can go back to the bosom of his family, but the man whose face is distorted, no matter how much his family may love and cherish him, suffers most," said Sir Arbuthnot. "So I began to isolate these cases, beginning with five doctors. This start has developed into a magnificent hospital with 750 men, and we are literally making new faces. We have enlisted the services of the best dentists, sculptors, wax workers, and surgeons, and developed specialists in transferring bones from other parts of the body to the face. If you could see how happy these men are, it would be a lasting satisfaction to know their gratitude."

Sir James Mackenzie told of some of the heart cases referred to him. "Instances of 'irritable heart,' he said, "are due to general weakening of the body through illness in the

trenches." Outdoor exercise and sports are curative agencies.

Sir James, in speaking of the examination of recruits, said: 'The tests of a man's fitness as a soldier should depend upon what he has been doing and what he is able to do. A young fellow was sent to me because his heart was supposed to be bad. I asked him what he had been before he entered the service. He said he had been a butcher. I asked him if he had been able to carry the carcass of a sheep upstairs and whether such work had been a regular part of his duties. He said that he had been accustomed to doing exactly that, and frequently and without physical discomfort. I said: 'I do not need to examine your heart. If you can do work like that you are certainly fit.' Too many men are rejected because of alleged defects which are more apparent than real.'

It was after this meeting that Colonel Lane asked why women are not eligible to the Medical Reserve Corps. He said that he had been instrumental in having them admitted to the Medical Service in Great Britain.

The noted British surgeons were guests at the monthly meeting of the General Medical Board of the Council of National Defense and at the meeting of the State and County Committees of the Medical Section of the Council, held Sunday, June 9, in Chicago. At this time Colonel Bruce took special pains to speak of the work of American surgeons, many of whom are members of the General Medical Board who are doing most important work at the front—Drs. Frederic A. Besley, George W. Crile, J. M. T. Finney, Charles H. Peck, William S. Thayer, Harvey Cushing, George E. Brewer, Richard H. Harte and others. "These men went over as medical men—and stayed as soldiers, for they operate at the front lines, amid bursting shells, and are continually under fire. While I was in France, before leaving to come here on this mission, Sir Arthur Sloggett of the British Medical Service sent for me and said he wished me to take a message to America. This is what he said: 'I appreciate the very excellent work which American doctors and American nurses are doing in the British service.' He said they had been a very great help and an inspiration to the service. In fact, they will never forget the American doctors and nurses. He recommended a large number of your medical officers at the front for the same honors

that he had recommended for those in his own service, but owing to the regulation of your Government they were not able to accept. On a recent trip to the front, I met also a number of your soldiers, who gave me the opinion when one looked in their faces that nothing would stop them, and you know what they did when they first encountered the Germans quite recently. I don't think you need to worry about the enemy getting a few feet of territory. One or the other side can get some ground if they pay a sufficient price for it, and during the offensive of the 21st of March, and subsequent dates, the German paid a very large price for the territory which he took. Even if we should be driven to the sea, and if we have to take to the boats and go to England, this battle is not over. 'We will make it so that ships sailing through the Irish sea sail a sea boiling with submarines,' said one of the German leaders in February, 1917. To which England replied: 'Make it boil like the caldrons of hell, and we will sail just the same.' We of Canada and you of the United States are of the same race and blood. Now that we are comrades in arms, we have a still further bond uniting us. I have difficulty in appreciating the difference between Canada and America. I can tell you the difference between England and America. England says: 'As it was in the beginning, is now, and ever shall be. Amen.' America says: 'As it was in the beginning, is now, and by gosh there's got to be a change.' That spirit now represents the opinion of England as well as that of our allied nations.

"The German Chancellor, when America entered this war, very sneeringly remarked that the weight you would throw into the scale would not be greater than that of a straw. To this Mr. Punch replied that he quite agreed with the statement of the German Chancellor, but he would like to point out and make the prediction that it would be the last straw which would break the camel's back."

Sir James Maekenzie praised highly the classification of American surgeons as reported by Dr. William J. Mayo for the Committee on Surgery of the General Medical Board. The class indexing and coding of the more than 20,000 American physicians was termed ideal by Sir James, who said that the United States is avoiding the mistakes made by England. "England," he said, "was precluded from such

a systematic course by the suddenness with which the war came."

Colonel Lane told of the enormous help given by American surgeons who came over long before America's entry into the war, saying that he had been asked to speak about the difficulty of getting medical men for the military service. He said: "The difficulty with us has been to keep them out. I do not suppose you are any different from our men. I have always understood that the medical people in America were the keenest people in the world. Our people have gone without a word. They gave up their practices, their future, their wives and their children. They did not ask, 'How much are we going to be paid?' or 'What is going to become of our families?' They came at once to the aid of their country. I do not think you will have to ask the medical men to come. I think the difficulty, my friends, will be keeping them away."

After their attendance upon the sessions of the American Medical Association convention, the visitors made a trip to Rochester, Minnesota, as guests of the Mayo brothers. In Boston, on June 19, the visitors spoke at sessions of the Massachusetts Medical Society in the Boston Medical Library. After this, came visits to Detroit, Cleveland, Pittsburgh, Philadelphia, and New York City, accompanied by Dr. Franklin Martin, Member of the Advisory Commission of the Council of National Defense and Chairman of the General Medical Board, and Major Henry D. Jump of the General Medical Board, arrangements being made in advance for them to speak at meetings held under the joint auspices of the State Committees, Medical Section, Council of National Defense and the local medical societies. Upon all these occasions the visitors urged the need of physicians at the front, and warmly seconded the efforts of the State Committees, and of Dr. Martin and Major Jump, in appealing to the doctors to enroll in the Medical Reserve Corps, Naval Reserve Force, and Volunteer Medical Service Corps.

In Detroit on June 21, the visitors were shown about the city and visited the Packard and Ford plants. In the evening at a big meeting in the new Elks Temple Auditorium, Colonel Bruce spoke of the work of Detroit surgeons at the front, including Drs. Angus McLean, Burt R. Shurly, Theodore A. McGraw, Harry N. Torrey, William A. Spitzley, Frank

B. Walker, Louis J. Hirschman, Ernest K. Cullen, and also Dr. John R. Sherriek, a Michigan physician who has been awarded the military cross for gallantry.

Colonel Bruce frankly criticized Americans for eating too freely, saying that the menu cards in hotels and restaurants astonish foreigners. He urged that white flour and meat be conserved to a greater extent, and that the use of motor cars for pleasure be cut down.

Colonel Lane urged that instead of being lulled into security by the apparent success of war-winning work, America should forge ahead to greater efforts.

From Detroit the party went to Cleveland by boat. After a dinner at the Union Club, there was a largely attended meeting at the Chamber of Commerce, over which Dr. C. A. Hamann presided. In addition to the talks by the visitors, Dr. William E. Lower of Cleveland, who recently returned after a year's service with the Lakeside Unit at the front, also spoke.

Thence to Pittsburgh, where Dr. J. J. Buchanan, Chairman of the State Committee, Medical Section, Council of National Defense, and his coadjutors, had made such preparations for the meeting that two thousand persons thronged Carnegie Music Hall for the meeting Sunday night, June 23.

"When I left England I felt certain that we should win the war sometime," said Colonel Lane. "Since I have been in this country I have become more certain, and I have come to believe that we shall win it soon." Colonel Lane spoke with enthusiasm of the shipbuilding activities he had seen on this side. He regarded as equally efficient the medical organization work in Washington under Surgeon-General Gorgas and Dr. Franklin Martin. "You can make a soldier in four months for the sea, earth, or air," he said, "but it takes seven years to make a doctor, and after we get him he must learn his job. It makes a vast difference in the work of a hospital whether or not it is organized for efficiency, and this depends largely upon the fitness of the physicians for their particular work."

Colonel Bruce said that the work of the medical men in the armies had stamped out typhus and typhoid fever, there being when he left France only twenty-seven cases of typhoid fever in an army of two million men. He told of an experience he had had in a hospital bombed

by the Germans, adding that sixteen wounded German prisoners had been killed by one of the bombs dropped.

In Philadelphia, the visitors were the guests not only of the physicians, but of the city as well. Forty prominent men, including city officials and leaders in various activities, attended the dinner in their honor at the Bellevue-Stratford Monday night, June 24. During the day the visitors had been taken to Cramp's Shipyards, the plant of the International Shipbuilding Corporation at Hog Island, and the Eddystone plant of the Remington Arms Company. The meeting at 9 o'clock in the Bellevue-Stratford ballroom was presided over by Dr. Edward Martin of Philadelphia. Colonel Lane said: "When America sent Dr. Alexis Carrel to Europe, she did more than if she had sent ammunition, guns and food. His discovery has worked miracles among the wounded of the Allies." Colonel Lane also praised highly the other doctors and the nurses from the United States.

Sir James Mackenzie asserted that England is not in danger of starvation. "Nor are there any signs of famine at present," he said. "Up to the latest harvest, food was scarce, and we had a hard time to get the staples of life, especially cheese and potatoes. Now things are running smoothly." Sir James urged that efforts be made to counteract German propaganda in Russia.

Colonel Bruce asserted that the imaginary boundary line between Canada and the United States had been wiped out, and that the present war has cemented the relations between the countries. Speaking of England's independence of Germany, he said: "We make our own dyes, and we do not bother or even give a thought about the supply of German potash. Five thousand ships enter and leave British ports each week. We have loaned 600 ships to France and 400 to Italy. Before the war less than 200,000 women were engaged in work; now the number exceeds one million, in more than 400 branches of munitions manufacture. Social distinctions have been leveled in the utter democracy of overalls and caps."

On the eve of their departure, the distinguished visitors were entertained at a dinner given them by the New York doctors at the Metropolitan Club.

UNITED STATES PUBLIC HEALTH REPORTS.

THE United States Public Health Report for June 21, 1918, contains an important article dealing with arsphenamine and neo-arsphenamine. Previous to the war, these preparations were manufactured by a single German firm and were uniform in their composition and properties. At the present time, they are being manufactured in England, France, Japan, Canada, and the United States, and are not uniform. In order to establish tentative standards for these preparations, qualitative and quantitative tests have been worked out and compiled. They are given in this report.

Statistics are given concerning diseases in the United States, among the troops, and in foreign countries.

The United States Public Health Report for June 28, 1918, contains an article dealing with vaccination against smallpox and typhoid fever. A review is given of the British experience with dried milk powder. An investigation has been made concerning the preparation, composition, and nutritive values of these powders, with special reference to their use in infant feeding. An account is given of the history, manufacture, and uses of these products, and of their physical and chemical characteristics. In regard to bacteriology, it has been found that the process of drying reduces bacteria enormously. The opinion is expressed that when breast feeding is impossible, dried milk is a very valuable food for infant feeding.

This report shows further progress in state and federal coöperation in combating venereal diseases. Thirty-seven states now have laws which require notification. Twenty-four states have made definite arrangements to coöperate with the Federal Government. There are four principal channels in this campaign:

(1) Educational: Acquainting the public with the nature of the diseases and the objects desired to be accomplished.

(2) Law enforcement: Securing coöperation of the physicians in reporting cases, and of the police in apprehending prostitutes, vagrants, and such other persons as can be reasonably suspected of having venereal disease in communicable stages.

(3) Propaganda to secure local funds for providing detention homes and hospital facilities.

ties for isolation and treatment of venereal disease carriers who by their habits are a menace to the public health.

(4) Establishment of increased facilities for early diagnosis and treatment.

Statistics are given concerning the prevalence and geographic distribution of preventable diseases in the United States, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world.

PUBLICATIONS BY ARMY MEDICAL OFFICERS.

As stated in the circular "Memorandum for Editors of the Medical Publications" recently issued by The Surgeon General's Office, all medical manuscripts by medical officers of the Army intended for publication should be first submitted to the Board of Publications, Surgeon General's Office, Washington, D. C. for censorship and approval. The authors are requested to send in two (2) typewritten copies of their manuscripts to the Board of Publications, care being taken that the manuscripts are double spaced. Attention to this detail will facilitate handling of the manuscripts, both by censors and publishers.

By direction of the Surgeon General:

C. L. FURBUSH,

Colonel, Medical Corps, N. A.

MEDICAL NOTES.

CHOLERA IN PETROGRAD.—According to the reports of travelers who have arrived in Stockholm, several hundred persons are dying daily in Petrograd from Asiatic cholera. The disease is now prevalent in many parts of Russia.

VASSAR TRAINING CAMP FOR NURSES.—Statistics just issued by the Training Camp for Nurses at Vassar College concerning the 437 students, show that in the college representation Vassar leads with 44 students, followed by Smith with 37, Wellesley with 27, Mt. Holyoke with 20 and Oberlin with 18. In all, 115 colleges and universities are represented.

In the classification by States, Ohio leads with 54, New York following with 45, Massachusetts with 35, Illinois with 28, Michigan with 26, and Minnesota with 20. There are six students from Canada, and 41 of our States are represented.

The average age of the students is between 24 and 25, although the ages range from 19 to 44. The college classes run from 1889 to 1919, but the greatest number from any one class come from 1918, just graduated.

In the classification by occupations, teaching leads with 211, while 101 are listed as students. The occupations are varied, the list showing social workers, farmers, newspaper writers, missionaries, Red Cross workers, secretaries, stenographers, singers, chemists, and housekeepers.

PREVENTION OF DISEASE AND CARE OF THE SICK.—The United States Public Health Service has issued a Miscellaneous Publication No. 17, dealing with "Prevention of Disease and Care of the Sick," by W. G. Stimpson, M.D., with a supplement on "First Aid to the Injured" by R. M. Woodward, M.D. It has been prepared for the use of the layman in order that he may know what measures to take to protect himself from disease and to care for himself in case of sudden illness.

Freedom from disease depends upon conditions intimately associated with the body and its environment. Sanitation of buildings is considered as one of the most important factors in prevention of disease. Such matters as construction, lighting, ventilation, heating, water supply, and sewage disposal in civilian life and camps are discussed. A section is devoted to personal hygiene, childbirth and infant care.

The transmission of disease by insects is discussed and methods of exterminating pests are given.

A large part of this work is devoted to the care of the sick, and considers the symptoms, treatment and prevention of many diseases. A section dealing with first aid to the injured, gives rules to be observed in time of accident, and methods of treatment for hemorrhage, fractures, dislocations, sprains, wounds, resuscitation and poisoning.

CHILD CARE.—Things every mother should know if the nation is to meet the health needs

of its children, as indicated by the draft and still further revealed by the weighing and measuring test, are made available by the Children's Bureau of the U. S. Department of Labor in its new bulletin on Child Care, prepared by Mrs. Max West.

A third of the men examined for military service in the first draft were found to have physical defects which rendered them unfit. Many of these defects might have been overcome if they had been recognized and dealt with in early childhood; the period between two and six is often the time when such defects make their first appearance. "Child Care" has been prepared in the hope that it would enable mothers to understand and recognize symptoms which indicate the need of special care, and also to give mothers the better understanding of the simple laws of hygiene through which it may be possible to prevent the development of such defects at all. It will be especially useful to thousands of mothers who have learned by the weighing and measuring test of defects and weaknesses in their children, which need particular attention.

"Child Care" deals with children from two to six years old and is the third issue in the series which began with "Prenatal Care" and "Infant Care." It contains simple rules of health and hygiene, including carefully compiled directions about proper food, suitable clothing, suggestions for play and exercise, for discipline and training. It gives simple menus for young children. A list of books on child care and training is added.

WAR NOTES.

JEWISH MEDICAL UNIT.—The first all-Jewish Medical Unit, composed of forty-three persons, among them doctors, nurses, sanitarians, and administrators, on the way to the Holy Land for the purpose of establishing health service there, has safely reached London. The Hon. Arthur J. Balfour, British Secretary for Foreign Affairs, received the organization and promised to attend personally to giving the unit facilities for its voyage to Palestine.

There are three Boston men in the unit and several from New England. The Boston men are Dr. Joseph Suffrin, Samuel M. Schmidt, graduate of the Massachusetts Institute of Technology and former head of the West End Social Center, and Adolph Hubbard, an attorney.

RED CROSS COMMISSION TO SWITZERLAND.—An American Red Cross special commission to Switzerland, to take charge of the relief work of American prisoners of war and American civilian prisoners in the hands of the Central Powers, has been organized, with Joseph B. Dimmick of Scranton, Pa., as its chairman. Mr. Dimmick has lived in Switzerland and is thoroughly familiar with Swiss people.

The commission also will extend relief to destitute citizens of the Allied Powers now in Switzerland, and aid the Swiss in relieving suffering occasioned by the war.

Other members of the commission are: Carl P. Dennett, Boston; Athell McBean, San Francisco; Ralph A. Stewart, Boston; and Dr. Alfred Worcester, Waltham, Mass., as deputies, all serving without pay. Headquarters of the commission will be at Berne.

LONDON HOSPITALS FOR AMERICANS.—The British army council will take over two of the London hospitals for exclusive use of American wounded.

MEDICAL APPOINTMENTS.—The following appointments in the Medical Reserve Corps have been announced:

Captains: C. A. Cooke, Montague; F. J. Hussey, Holyoke; G. A. Griumard, Fitchburg; R. G. Loring, Boston; G. G. Smith, Boston; H. R. Cloudman, Brockton; D. C. Dennett, Winchester.

First lieutenants: N. J. Heywood, Willimansett; G. A. Stanwood, Wellesley Hills; C. N. Brady, West Newton; H. J. Lupien, Brockton; F. A. O'Sullivan, Lowell; J. D. Spaulding, Boston; F. C. Atkinson, Lowell; E. J. Brearton, Boston; W. T. Holland, West Roxbury; B. D. Paul, Boston.

HOSPITAL PREPARED IN THREE DAYS.—The American Red Cross prepared evacuation hospitals close behind the battle front along the line northeast of Paris, a few days after the last German offensive was launched, in a remarkably short time.

In the case of one hospital the officer in charge left Paris with 10 nurses and 10 tons of equipment without knowing exactly where the hospital was to be located. He found a desirable building, rented it, and had the place fully equipped, including an operating and x-ray room, within three days.

The second hospital had a few beds and a little equipment when the Red Cross officers arrived. Its capacity was increased to 600 beds by means of equipment rushed from Paris on motor trucks. The trucks, with bedding and hospital equipment, reached the hospital simultaneously with the wounded from the battlefield.

The third hospital is in a sector where American troops are brigaded with the British. The first two are behind the Franco-American front.

THE YANKEE DOCTOR.—A recent issue of the *Medical Press and Circular* has published the following extract from a letter of an officer of the 9th Essex Regiment, describing the work of an American medical officer serving with that regiment, who was awarded the British Military Cross for his courage and efficiency:

"Lieutenant J. T. McCarthy, of the U.S.A., is, I believe, the first American serving in France to obtain the M.C. He is medical officer of the 9th Essex Regiment, being attached to us in December last.

Our 'Yankee Doctor,' as we call him, is one of the best, and is loved by all, officers and men. He's strict, but never has anyone been wounded or sick without the Doctor going to him, no matter what the shelling or other conditions.

He obtained his M.C. for his magnificent work in the recent Albert fighting. He went up with the regiment in motor buses to meet the Germans there, and during the worst period the regiment has known he was always to the front with his medical comforts. He once had his aid post in a quarry right in our front line, and always where the fight was worst he was with the wounded.

In slack times he would make tea and carry it to those who couldn't make it for themselves. Never does he miss an opportunity of performing a kind act."

HENRY FORD STARTS \$3,000,000 HOSPITAL.—One of the most complete hospitals in the world, expected to take a large part of the work of rehabilitating American soldiers wounded overseas, is being erected in Detroit by Henry Ford. It is being erected faster than the average building is constructed in peace time, because of Government coöperation in the purchase of materials.

The hospital is being built on a twenty-acre tract of land and will have a floor space of 50,000 square feet. It will be a four-story structure, with the exception of the diagnostic building placed in the center, which will be six stories high. There will be 1300 windows in

the building, 40 porches around it, and a roof garden. Mr. Ford is spending \$3,000,000 on the institution.

INFLUENZA EPIDEMIC AT SAN JUAN, P. R.—There is an epidemic at San Juan, P. R., of a disease known locally as hay fever. It bears a resemblance to the recent epidemic of influenza in several Spanish cities. It is estimated that there are 2000 cases in San Juan.

CANADA COMMISSIONS ITS ARMY NURSES.—Nurses enlisting in the Canadian Army Medical Corps will receive commissions, and will wear uniforms with the shoulder straps of lieutenants, and will be entitled in such uniforms to salutes. For those nurses accepted for the United States, no provision has yet been made for commissions. Canadian nurses desirous of serving should write to the Director of Medical Service, Woods Building, Ottawa, for authorization to be examined, and then report at 49 Bromfield Street, Boston, for examination.

SINKING OF A HOSPITAL SHIP.—As we go to press, report is received that another British hospital ship, the *Llandovery Castle*, was torpedoed and sunk, with the loss of all but 24 of the 258 persons aboard, which included 80 Canadian medical officers and 14 women nurses. Only two of these nurses were among the survivors.

MEDICAL COMMISSIONS.—The following appointments in the Medical Reserve Corps have been announced by the War Department:

Captains: Harry Barnes, Boston; George Gabler, Holyoke; John Gifford, Randolph, Vt.; Charles H. Jameson, New Hampshire; Howard Jewett, Lowell; William Lazell, Barre, Vt.; Albert McCauley, Brighton; John McGillicuddy, Worcester; Edward P. Richardson, Boston; and George Sherman, Cambridge.

First lieutenants: Dennis Black, Nashua, N. H.; Luther Eastman, Auburndale; Allston Fogg, Underhill, Vt.; Louis Gordon, Boston; Leon Havens, Cambridge; John Hunter, Burlington, Vt.; Joseph Kearney, Lowell; Bryant Wetherell, Holyoke; Henry Brown, Boston; Cecil Whitehouse Clark, Newtonville; Matthew Mahoney, Lowell; Frank Quist, Worcester.

DR. SHERMAN OF CAMBRIDGE COMMISSIONED.—Dr. George E. Sherman, Cambridge, has been commissioned a captain in the Medical Reserve

Corps. He is forty-two years old and is a practising physician in Cambridge. He is a native of Milford, Massachusetts. He entered Harvard with the class of 1893, but left at the end of his freshman year. He graduated from Tufts Medical School in 1905.

HARVARD DOCTOR GOING TO SIAM.—Dr. Seth Lake Strong, who was graduated from the Harvard Medical School in the class of 1913, has been appointed lecturer in surgery to the Royal Medical College at Bangkok, Siam, and will also act as surgeon to the Siravaj Hospital there. He has been connected with the South Shore Hospital at Marshfield Hills as surgeon for a considerable part of the time since his graduation. This is one of the evidences of the modernization of the Far East, which has been proceeding rapidly within recent years.

NEW ENGLAND MEN APPOINTED.—The following appointments have been announced by the War Department:

Major, Medical Reserve: William Faulkner, Boston.

Captains, Medical Reserve: Butler Metzger, Lynn; Robert Scales, Dorchester; Mortimer Cavanagh, Great Barrington; Gilman Chase, Clinton; Cornelius Harkins, Westfield; Charles Hawkes, Providence, R. I.; Charles Holbrook, Haverhill; Hubert Holland, Jamaica Plain; Ernest L. Hunt, Worcester; Howard Bigelow Jackson, Melrose; John Lougee, Boston; Henry Stevens, Boston.

First lieutenants, Medical Reserve: George Bowers, Worcester; Francis Brigham, Boston; Alton Choate, Gloucester; John Connelly, Brookline; Clarence Gannon, Burlington, Vt.; Burtis Hame, Boston; Alfred Leary, Boston; Arthur Cuthbert Lewis, Fall River; Alfred McAlpine, Providence, R. I.

HOSPITAL ANNEX OPENED BY RED CROSS IN LONDON.—The American Red Cross recently opened a thirty-bed annex in its Lancaster Gate Hospital, where both American and British officers are treated. The annex will be used exclusively for Americans and its staff will be composed entirely of American trained nurses.

GIFT TO RED CROSS FOR RESEARCH WORK.—A gift of \$250,000 has been made by Cleveland H. Dodge to the Red Cross for medical and surgical research. As much of the money

as needed will be spent to study diseases in the Army and Navy.

BOSTON UNIT: A CORRECTION.—In the issue of the JOURNAL for July 11th, the name of Major Harry W. Goodall was omitted in an article describing the personnel of the "Boston Unit." Major Goodall is at the head of the medical side of the unit.

LITTLE VENEREAL DISEASE AMONG TROOPS IN FRANCE.—According to figures made public on July 12, by the Army Medical Corps, venereal disease among the troops is being controlled both here and in France with remarkable success.

"In France, with probably 700,000 men mobilized, the rate reported on June 13 showed less than one new case per thousand men each week. Before the war the lowest rate in the regular army was double this."

SKIN GRAFTING HOSPITALS.—The Red Cross is preparing for the establishment of hospitals especially designed for skin grafting and gas cases. They will be for use by all the Allies. In June, five hospitals were enlarged and two additional navy hospitals and five convalescent homes for both officers and men were established.

WOUNDED SOLDIERS SENT HOME.—Sick and wounded men from the overseas forces arriving in the United States during the two weeks ending July 5, totalled 229.

NEW ENGLAND APPOINTMENTS.—The following appointments in the Medical Reserve Force have been made by the War Department:

Captains: Henry Lee Crahan, Rutland, Vt.; Hiram Leonard Johnson, Franconia, N. H.; Stoddard Martin, Windsor, Vt.; Carl Robert O'Brien, Bangor, Me.; Wilmarth Seymour, State Farm, Mass.; Dennis Edward Sullivan, Concord, N. H.; William Turner, Fall River, Mass.; Charles Darling, Boston; Richard Hinchey, Waltham; Jesse Libby, South Weymouth.

First Lieutenants: George Anthony, Wellesley; Harris Barrows, Boothbay Harbor, Me.; George Bunnell, State Hospital, Foxboro; Frank Coffin, Haverhill; Daniel Coleman, Wellesley; Alfred Daudelin, Nashua, N. H.; Maurice Gilbert, Chelsea; Lorne Harris, Cliftondale, Mass.; Thomas Norton, Pittsfield; John William Stewart, Barre, Vt.; John Gilchrist, Springfield;

Nebuther Holden, Springfield; Frederick Shaw, Concord, Mass.; Laurence Swan, Beverley; Lester Trufant, Norway, Me.; Rolland Bennett, Dover, N. H.

First Lieutenant, Dental Reserve, John Smith, Cambridge, Mass.

CHIEF SURGEON MAKES INVESTIGATION.—General Meritte Ireland, Chief Surgeon of the American Expeditionary Forces in France, is engaged in an investigation of the methods employed in handling and treating the wounded in the recent battles in which American troops were engaged. He has detailed several surgeons from the regular medical corps and the medical reserve corps to visit hospitals and to confer with medical officers and soldiers.

BOSTON AND MASSACHUSETTS.

SOCIAL SERVICE DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.—The 12th annual report of the Social Service Department of the Massachusetts General Hospital gives an account of its activities during 1917. This department, through the efforts of paid workers and volunteers, extends the work done by the physicians of the hospital, and investigates industrial disorders and home conditions. The staff has been depleted by the departure of several members to France and the enlistment of others as nurses or as members of the Red Cross Civilian Relief. The Massachusetts General Hospital Unit, Base Hospital No. 6, sailed for France in July, 1917. After three months, Dr. Richard C. Cabot, at the request of the Red Cross at Paris, was transferred to act for six months as Director of Health Centers. This work corresponds with the Medico-Social Service Work at the Massachusetts General Hospital. To the Central Paris Dispensary are sent refugees from all over the city. Clinics are being run every afternoon, and Serbian as well as French go to them.

The Social Service Department rendered notable service at the time of the Halifax Disaster. Patients were interviewed and plans made for their rehabilitation.

The Orthopedic Clinic has secured suitable apparatus for orthopedic patients. The Neurological, the Children's, and the Genito-Urinary Clinics have given valuable service to patients. The South Medical Clinic for Syphilis has treated 4689 patients. The Infantile Paralysis

Clinic has been actively maintained and 193 cases have been treated.

APPOINTMENT OF DR. GOLUB.—Dr. Jacob Joshua Golub has been appointed to the position of Acting Assistant Surgeon, United States Public Health Service, stationed at Boston, for the examination of passengers and members of crews of vessels entering the Port of Boston. The appointment dates from April 27, 1918.

MASSACHUSETTS HEALTH BULLETIN.—The Public Health Bulletin issued for May, 1918, by the State Department of Health of Massachusetts contains an article describing fats and their value in the diet. The percentage of fats in animal foods, fish, fruits and vegetables, nuts and cream is estimated; oleomargarine, renovated or process butter, cooking butter, and beef suet substitutes are described, and suggestions are given for their use.

The report includes a description of an experience with the Schick test and toxin-antitoxin mixture in the State Industrial School for Boys at Shirley, Mass. It was found that the Shick test gives not only a means of distinguishing immune from susceptible persons, but it also enables one to predict with reasonable certainty the comparative severity of a case of diphtheria in different susceptible persons.

The opinion of the Commissioner of Health as to persons who may be entitled to certain information regarding venereal regulation is recorded.

Reports are given of the Divisions of Food and Drugs and of the Bacteriological Laboratory.

The résumé of communicable diseases for April shows that there were 14,752 cases of communicable disease reported, and that the increase in cases is largely confined to lobar pneumonia, measles, and whooping cough.

The Bulletin includes, also, a record of new legislation. One resolution provides for a report by the State Board of Agriculture and the State Department of Health on the expediency of utilizing the peat deposits in the Commonwealth. Other legislation is relative to the procedure in prosecutions for selling or keeping adulterated or misbranded vinegar, and to the standard and sale of cider vinegar. Other acts are relative to making an appropriation for the control, suppression and treat-

ment of venereal disease, and to the classification and grading of milk.

Statistics are given concerning cases and deaths from diseases dangerous to the public health.

The Massachusetts Medical Society.

NOTES FROM THE DISTRICT MEDICAL SOCIETIES.

DISTRICT CORRESPONDENTS.

Berkshire. A. P. MERRILL, M.D., Pittsfield.
Bristol North. ARTHUR R. CRANDELL, M.D., Taunton.
Bristol South. EDWIN D. GARDNER, M.D., New Bedford.
Essex North. T. N. STONE, M.D., Haverhill.
Essex South. H. P. BENNETT, M.D., Lynn.
Franklin. PAUL W. GOLDSBURY, M.D., Warwick.
Hampden. LAURENCE D. CHAPIN, M.D., Springfield.
Hampshire. E. E. THOMAS, M.D., Northampton.
Middlesex South. WILLIAM C. HANSON, M.D., Belmont.
Norfolk South. DANIEL B. REARDON, M.D., Quincy.
Plymouth. WALLACE C. KEITH, M.D., Brockton.
Worcester. ERNEST L. HUNT, M.D., Worcester.

PLYMOUTH DISTRICT MEDICAL SOCIETY.—Dr. Wallace C. Keith, 237 North Main Street, Brockton, will act as secretary of the Plymouth District Medical Society during the absence in the service of Captain Alfred C. Smith, M.R.C., now stationed at Camp Greenleaf, Fort Oglethorpe, Georgia.

THE FRANKLIN DISTRICT MEDICAL SOCIETY.—The Franklin District Medical Society met at the Mansion House, Greenfield, July 9, 1918, at 11.15 a.m. Seventeen out of a possible twenty-five members were present. Various matters of present urgency were discussed, particularly as to the Medical Reserve Corps of the Army and the Volunteer Medical Service Corps. Dr. S. B. Woodward, president of the parent society, stated the case for the latter, and Doctor, now Lieutenant, Moline, who happened to be at home on a furlough from Camp Greenleaf, Fort Oglethorpe, Georgia, gave point to the former from his experience. It was voted to ask the State Board of Labor and Industries, through Commissioner Mulready, to hold an "Industrial Health Conference" in Greenfield to take the place of the next meeting of the Franklin District Society, in September. A committee was appointed consisting of Dr. H. G. Stetson, Dr. J. W. Cram and Dr. J. D. Howe to draft resolutions on the recent death of Dr. John Edwin Urquhart of Ashfield,

whose intimate association with the Society had been so wholesome and brotherly. Meeting adjourned.

PAUL W. GOLDSBURY,
Reporter and Acting Secretary.

Obituary.

JOHN EDWARD SOMERS, M.D.

JOHN EDWARD SOMERS, M.D., of Cambridge, died at the Massachusetts General Hospital, Boston, July 4, 1918, aged 66 years.

Born in Antigonish, N. S., Sept. 5, 1851, he was graduated from St. Francis Xavier College in that town and studied a year at the Harvard Medical School. He spent the following two years at Bellevue Hospital, New York, graduating from the Bellevue Hospital Medical College in 1875, immediately following which he began practice in North Cambridge. In 1897 he spent a year in the hospitals of London, Paris and Vienna. In 1900 he went to Vienna for another year's experience in the hospitals there.

Dr. Somers' health had been seriously impaired for many years, although he kept up active practice almost to the last.

He joined the Massachusetts Medical Society in 1876 and was a member of the American Medical Association, the Boston Medical Library and the Cambridge Medical Improvement Society. He was chairman of the trustees of the Cambridge Public Library, and several years ago was a member of the School Board.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR JUNE, 1918.

GENERAL PREVALENCE.

There were 9048 cases of communicable disease reported during the month of June. This is a decrease from the previous month of 5842, and also a decrease of 1253 cases from the corresponding month for 1917. The case rate per 100,000 population for June was 230.8 as compared with 379.8 for May.

This lessened prevalence was most marked in

measles (2670 cases), lobar pneumonia (363 cases), diphtheria (190 cases), scarlet fever (198 cases), and German measles (1580 cases).

Whooping cough continues to be reported in rather excessive amounts, 829 cases being reported for June, 1918, as compared with 328 for June, 1917.

The prevalence for the first six months (January to July) for the more common diseases was:

Measles	25,647
German measles	9,240
Pulmonary tuberculosis	4,598
Diphtheria	4,145
Lobar pneumonia	4,135
Scarlet fever	3,088
Other forms of tuberculosis ...	393
Typhoid fever	321

No outbreak of importance occurred during the month. Some communities exceeded their endemic index, but not in the form of an outbreak.

Anthrax.—There were three cases of anthrax reported during the month. Two cases occurred in a tannery which had just started in business and no provision had been made for the disinfection of the hides. Under the direction of the District Health Officer, the owner has taken the necessary steps to prevent further infection.

The other one occurred in a truck driver who was infected in a local freight house. The man, while procuring his own load which consisted of hardware, had to move some hides which had been placed in front of the hardware, and, in moving the hides, became infected. The hides were imported from Hankou, China, and were sun-dried, admitted to this country under a consular certificate.

Anterior Poliomyelitis.—There were six cases of anterior poliomyelitis reported in various sections of the State during June.

Epidemic Cerebrospinal Meningitis.—This disease was reported 36 times, occurring in widely distributed areas of the State. Many of our records show that diagnosis was made shortly before the death of the patient, and it is again recommended that spinal puncture be done early and anti-meningococcus serum administered at that time.

Leprosy.—Two cases of leprosy were reported, both showing positive laboratory findings. One patient, knowing that a neighboring State does

not employ quarantine measures as practised in this State, left the State and has not been apprehended. The other patient is under the care of the local authorities and has been sent to Penikese Island.

Lobar Pneumonia.—Lobar pneumonia shows a marked decrease for the month, the number of cases reported being 200 for June as compared with 563 for May.

Smallpox.—One case of smallpox was reported. The patient, a sailor on a fishing vessel, was taken ill while at sea. The vessel came to shore and his condition was diagnosed and the patient removed to a marine hospital. The vessel and crew were placed in quarantine and all known contacts were vaccinated.

Venereal Diseases.—The reporting of the venereal diseases shows that the incidence of these diseases is far more prevalent than is generally believed. The figures for the month of June give us 815 cases of gonorrhea and 330 cases of syphilis reported, making a total for four and a half months of gonorrhea 3466, and syphilis 1417.

Diphtheria.—The number of cases of diphtheria reported shows a marked decrease from any month for this year. Cambridge, however, has an excessive amount, furnishing 265 cases during the past six months. It would seem, as this large number of cases has occurred epidemically rather than epidemically, that perhaps stricter methods of isolation and better quarantine might be established and, if maintained, reduce the incidence of the disease to a far lower level than has existed for the past 18 months.

Measles.—The measles situation in this State surely demands some comment, for while there has been a marked decrease in the number of cases reported this month, the decrease is, in all probability, due to the lack of new victims rather than to the preventive measures used.

During the month of June there were reported 3664 cases, as compared with 6334 for the month of May, making a total for the half year of 25,647. It would seem that little or no attempt has been made, other than the isolation of the patient after the eruption has appeared, to prevent the spread of this disease and that scarcely any attempt at control of contacts or the prevention of the infection of the non-immune.

Surely it is our clear duty to impress upon those in whom the care of children has been confided that measles is not a necessary disease of

childhood and that if they allow the children to become infected because "this is a good time to have measles" or that "they might as well have measles now as later" they are assuming a risk that may bring disastrous results through the complications which arise or even the death of the patient.

Authorities on preventive medicine are recommending that, besides the isolation of the patient, we watch with great care all children who could possibly have come in contact with a known case. It is advised that the temperature of all possible contacts be taken daily during the latter part of the incubation period, preferably after the first week of exposure, and that if a rise of one or more degrees is found, this suspected case be promptly isolated.

It has been proven that this initial rise of temperature occurs before the onset of the coryza and, as the most infective period of measles is during the pre-eruptive stage, efficient isolation at this period, a measure very seldom employed, gives us a valuable means of preventing the spread of this infection.

With the school in session it is advisable to keep all the children in school, watch the temperature of all possible contacts there and supplement this by the visitation at the homes of absentees. This method is, perhaps, somewhat expensive, but the results are certainly well worth the time, money and effort expended.

The appended table giving the number of cases with deaths, will prove quite conclusively that measles is not a disease to be lightly reckoned with:

YEAR	NO. OF CASES	DEATHS
1908	21,470	331
1909	15,060	157
1910	18,794	240
1911	16,094	158
1912	22,423	286
1913	29,192	315
1914	12,264	149
1915	22,881	149
1916	25,460	392
1917	23,880	372
1918 (six months)	25,647	325*

* For six months.

RARE DISEASES.

Anterior Poliomyelitis was reported from Boston, 1; Fall River, 1; Milford, 1; Northampton, 1; Somerville, 1; and Springfield, 1.

Anthrax was reported from Boston, 1; and Winchendon, 2.

Dog Bite requiring anti-rabic treatment was reported from Methuen, 1; and North Attleboro, 1.

Dysentery was reported from Boston, 4.

Epidemic Cerebro-Spinal Meningitis was reported from Andover, 1; Boston, 14; Cambridge, 2; Camp Devens, 4; Concord, 1; Lowell, 2; Malden, 5; Marlboro, 1; North Andover, 1; Topsfield, 1; Winchester, 1; and Worcester, 3.

Leprosy was reported from Boston, 2.

Malaria was reported from Boston, 1; Bridgewater, 1; Camp Devens, 1; Dedham, 1; and Mansfield, 1.

Pellagra was reported from Boxford, 1; Foxboro, 1; Northampton, 1; Taunton, 1; and Worcester, 2.

Septic Sore Throat was reported from Barnstable, 2; Boston, 1; Gill, 2; Hull, 2; Lowell, 1; Medford, 1; Newburyport, 1; Salem, 1; and Somerville, 1.

Smallpox was reported from Tisbury, 1.

Tetanus was reported from Boston, 1; Salem, 1; and Worcester, 1.

Trachoma was reported from Boston, 6; Cambridge, 1; Gloucester, 1; Northampton, 1; Peabody, 1; and Somerville, 1.

NOTICE

UNITED STATES PATENT OFFICE.—There is need for technically trained persons for the examining corps of the Patent Office. Men or women are desired who have a scientific education, particularly in higher mathematics, chemistry, physics and French or German, and who are not subject to the draft for military service. Engineering or teaching experience in addition to the above is valued. The entrance salary is \$1500.

Examinations for the position of assistant examiner are held frequently by the Civil Service Commission at many points in the United States. One is announced for August 21 and 22, 1918. Details of the examination, places of holding the same, etc., may be had upon application to the Civil Service Commission, Washington, D. C., or to this office.

Should the necessity therefore arise, temporary appointments of qualified persons may be made pending their taking the Civil Service examination. Application for such appointment should be made to this office.

J. S. NEWTON,
Commissioner of Patents.

The Boston Medical and Surgical Journal

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Address.

MODERN PRINCIPLES IN THE CONTROL AND MANAGEMENT OF CANCER.*

BY EDWARD REYNOLDS, M.D., BOSTON.

THE subject of cancer is too extended and complicated to make it possible for me to deal with more than a few points in the topic within the limits of a brief address. I propose to speak briefly of the recent changes in our knowledge of the malignant diseases, of the general principles which now underlie accepted treatment, and then to go as far in consideration of the diagnosis and treatment of the disease in its most common situations as may be permitted by the time at my disposal.

The American Society for the Control of Cancer has been conducting for six years a nation-wide campaign in the education of the laity on the all-important subject of the recognition of the premonitory and early signs of cancer (which term I shall use throughout this address, for the sake of brevity, as covering the entire subject of the malignant diseases except when the more specific names are used). The Society has at the same time been active in urging diffusion of the latest views among the medical profession through the agencies of

the several state medical societies with which it has been in coöperation.

The experience which it has been my privilege to gain in the course of this campaign has led me to feel that there has been one particular factor which has been the great stumbling block to the rapid diffusion of the latest views among the profession, as distinguished from the laity. The minds of the laity have not been confused by preconceived ideas, and for this reason the seeds of the newer knowledge, to use a simile, have found the ready reception and rapid dissemination which always characterize the sowing of seed on virgin soil; but, to pursue the simile, when the same seed is offered to the minds of the medical profession its reception and dissemination are but too apt to be prevented and choked out by the strongly implanted weeds of a previous education which we now know to have been incorrect.

It is always a hard task to rid one's self of ideas which have been articles of faith for many years, but this is the task which now confronts us. The appearance of the newer pathology and natural history of the malignant diseases has been so recent that there is probably hardly a man in this room who was not educated to a conception of cancer which we now know to have been mistaken. We were all taught that the malignant growths are ma-

* Read before the Essex North District Medical Society.

lignant from the start, and that a growth that could once be demonstrated to be benign would remain benign until the end of the chapter. We were taught in consequence a carefully elaborated differential diagnosis between malignant and benign new growths,—all this, unfortunately, pseudo-knowledge, we must now abandon. If there is one point in this whole subject upon which all authorities are now agreed it is that there is no sharp line between the benign and the malignant, but that, upon the other hand, very many malignant new growths originate in, or about, originally benign new growths or ulcers.

A malignant new growth in any situation is frequently the product of a continuous chronic irritation. The first result of such an irritation is hypertrophy of the normal tissues; this is followed by proliferation, then by the extension of the epithelial* elements into the surrounding non-epithelial tissues, and the assumption by the individual cells of the malignant characteristics, in successive stages. The earlier stages of this process often produce the benign new growths or ulcerations, the later stages the malignant. Most benign new growths must be regarded as possessing potential malignancy. Of course statements so general as these must not be taken without reserve—it is impossible to make a brief general statement which is not open to exceptions. The lipomata, for instance, are almost invariably innocent throughout their history, while there are situations in which malignancy appears so early in the history that it may almost be said that there is no recognizable stage of chronic irritation, nor even a recognizable wholly benign stage, but the general principle above enunciated underlies the whole subject, and is our safest guide.

The signs and symptoms which we were all taught to use in diagnosing cancer are now regarded as the signs and symptoms of developed and established malignancy, and therefore of malignancy which has become almost, if not wholly, insusceptible of a radical cure, although it must be remembered that even in these stages much may be done towards alleviation, and that in occasional cases radical cure may still result. The essential change in our views, which we must all achieve, is an acceptance of the modern idea that the duty of the physician

to his patients is now to recognize, diagnose, and treat radically the conditions which ordinarily precede cancer in its several situations, and which are for the most part readily curable if radical treatment is adopted before actual malignancy has become established. In the more difficult situations in which malignant disease appears (and especially in that very common seat, the several organs of the digestive system), the diagnosis in the early and curable stages can be made only by the use of the comparatively intricate and expensive methods of modern laboratory diagnosis; moreover, if success is to be obtained these methods must be used in such cases at a time when the symptoms do not warrant anything more than a suspicion, and to wait for a probable diagnosis by simpler methods usually involves the loss of the patient's chance of life. Here the physician must be ready to explain the situation with all its doubts and possibilities frankly, and to advise the patient to push diagnosis to its ultimate possibility at the start, rather than to play the chances on delay.

The latest researches show that the disease is not contagious from one individual to another, and that in the human race, at least, the influence of heredity is probably negligible. The general principle of treatment is the immediate removal of any mechanical or physiological irritation which could conceivably cause an existing thickening or ulceration, and if this removal of irritation is not promptly followed by the disappearance of the lesion, an immediate and thorough excision of the induration or ulcer while it is still benign, by an incision made through unaffected tissues and without entering the lesion itself. There is an almost universal consensus of authority that, except in the case of a few of the very superficial and at most slow or semi-malignant new growths of the skin, radiation and the use of the cautery should be avoided during the early stages, though both these expedients have their place and are agencies of great value in the palliation of advanced and probably incurable disease.

The more important of what are now commonly spoken of as the precancerous conditions (those which predispose to cancer but are not malignant) are as follows: moles (and especially pigmented moles), keratoses, ulcers of the skin and orifices of the body, gall-stones, ulcers of the stomach, ulcers of the mouth,

* Except in the sarcomata, where the malignant process of course originates in connective tissue.

cystitis, erosions of the cervix, premature or obstructed involution of the breast, uterus and prostate, the adenomata, the papillomata (especially in the intestines, bladder and thyroid glands), cysts in the ovary and breast, because they tend to develop papillomata of their linings, polyps of the uterus or rectum, and, in general, all epithelial neoplasms.

In general, the observance of the dictum "*Ubi tumor, ibi incisio (excisio)*"—"Where you find a new growth, there you should do an excision,"—may be accepted as a far safer general principle than any other, though to the expert it is by no means without its exceptions.

These statements are so entirely at variance with the preconceived opinions of at least the elder part of the profession that they are likely to sound at first hearing wildly radical, and it is, therefore, only fair for me to say that in making them I believe that I am not speaking a merely personal opinion, but from what I know to be the accepted view among those surgeons whose experience entitles their opinion to the greatest weight.

The general acceptance by the profession of these views, which is rapidly progressing, will undoubtedly lead to the performance of some minor operations which might have been avoided, but we believe that it will also lead to a comparative rarity of the extensive, destructive and mutilating radical operations which are now so common, and which so frequently lead to no more than an interval of immunity from symptoms.

The natural history, diagnosis and standard operative treatment of the malignant growths vary so greatly with the different situations in the body in which they occur as to require for detailed consideration a different description for each situation, but I fear that in the time at my disposal it will hardly be possible to speak of the detailed application of the general principles above outlined to any more than a few of the situations in which cancer most frequently occurs. I shall probably be obliged to make even those remarks too brief and "sketchy." The American Society for the Control of Cancer has, however, in preparation a handbook for physicians which will deal exhaustively and authoritatively with each of the many manifestations of malignant disease in concise and practical form. It is hoped that this will be ready for distribution within a few months, and any physician who writes to the

American Society for the Control of Cancer, 25 West 45th Street, New York City, may count upon receiving it as soon as it is in print.

The malignant diseases of the skin are among the most frequent of all forms, and from their situation are susceptible of very early diagnosis. They appear mainly among elderly people, are slow in progress, have a long pre-cancerous stage, and even after the actual appearance of malignant cells, tend to remain localized somewhat longer than in most other situations.

There are two types—the squamous epitheliomata of the surface and those carcinomata which originate in the follicles of the skin. The squamous form tends to extend into the lymphatic glands earlier than the other. The squamous epitheliomata appear as persistent scaling spots which later form crusts which, when picked or knocked off, reveal an indolent ulcerative surface. The carcinomata of the follicles are for the greater part of their history ulcerative, many of them falling into the clinical class of rodent ulcers. Both patients and physicians are too apt to regard both of these forms in their earlier stages as small nuisances rather than as potential sources of death.

The differential diagnosis demands the exclusion of syphilis and tuberculosis, but since the excision of these little spots is so trifling a matter, all doubtful cases should be so treated.

In the earlier and strictly pre-cancerous stages they may be treated on the face, hands or other prominent places by radiation, cauterizing agents or freezing mixtures, which result in little or no scar, but if there is even a doubt as to the existence of actual malignancy, as shown by long persistence, marked increase of size, or induration about an ulcer, they should be submitted to wide excision through plainly unaffected tissues, and submitted to microscopic examination at the time of operation. If this shows any doubt as to the character of the tissues, at least the nearest set of lymphatic glands should be radically removed.

All tissue so removed should be at once submitted to the microscope for an accurate diagnosis, even though it is believed to be in a thoroughly benign or pre-cancerous stage. This should, moreover, be done at the time of the operation, and if malignant tissue is found, the radical operation appropriate to the situation of the growth should be performed at the same sitting. The postponement of the radical op-

eration for even the few days necessary for the submission of the specimen to subsequent microscopic examination unfortunately results in a far greater percentage of recurrence. Even when the immediate examination is negative the tissues should subsequently be carefully studied by a pathologist since serial sections will sometimes disclose a nidus of malignancy which was missed in the immediate examination and the immediate performance of a radical operation at a second sitting after the least possible loss of time, is, then, the next best chance. The necessity of pathological examination of tissues should be emphasized with even more force for those cases in which circumstances may seem to render it necessary to operate for suspected malignant disease in localities where the immediate pathological examination is unattainable. Free examination of tissue removed at operation should be available wherever the surgery of malignant disease, even in its earliest stages, is practised. In some States, laboratories for the free diagnosis of suspected tissue are maintained by the state universities, or by the State Department of Health. In Massachusetts a service has been organized by the Cancer Commission of Harvard University, in coöperation with the State Department of Health, and is in successful operation.

In new growths of the eyelids the use of radiation is justifiable at much later stages than elsewhere since the excision of growths from this situation is so deforming and so destructive to the eye.

The several organs of the digestive system are among the most common seats of cancer, especially in men, and are unfortunately among the most unfavorable since, from their inaccessible situation, the diagnosis of the precancerous stages is so difficult and the operations for the eradication of even the pre-cancerous lesions are, moreover, serious, but the application to these diseases of modern methods of laboratory diagnosis will, nevertheless, result in the saving of a proportion of the cases.

Cancer of the stomach is very common and rather slow in its initial stages. Its symptoms and signs are at first only those of chronic indigestion with, later, bloody vomitus, loss of weight and change of color, especially in middle-aged or elderly people. The pre-cancerous stage is that of simple ulcer of the stomach, and this is, fortunately, of rather long duration. The diagnosis of simple ulcer is effected

by analysis of the stomach contents and the use of the x-ray after a barium meal. While some simple ulcers heal under medical treatment, it is now a recognized principle that those cases which do not improve with promptitude should be treated by a wide excision of the ulcer, immediate pathologic examination and, in case of doubt, excision of the lymph nodes.

Cancer of the colon is not rare in elderly people. It occurs most frequently in the descending colon, rather less frequently in the ascending, and rarely in the transverse portion. Its early symptoms are persistent colic with bloody stools and later attacks of obstruction. The diagnosis is made by use of the x-ray after a barium meal and enema, and by the exclusion of the ordinary sources of rectal bleeding through a proctoscopic examination. In doubtful cases the physician should have no hesitation in recommending an exploratory abdominal incision. In this situation the disease has long precancerous and localized malignant stages, and the prognosis on early operation is not bad. The standard operation is a wide resection of the affected gut with the radical removal of the corresponding mesentery and its lymphatic nodes. In this situation success rests, perhaps more than in any other, on willingness to perform an exploratory operation for a mere justifiable suspicion of a growth without waiting for a positive diagnosis. A positive diagnosis can rarely be made until the case is beyond the prospects of cure.

Cancer of the rectum is fairly common at all ages over thirty. It is moderately rapid. The prognosis is not good except when it is operated upon in the very earliest stages. The only symptoms at this time are rectal bleeding and moderate tenesmus. The differential diagnosis between incipient cancer and internal hemorrhoids can be made only by physical examination with the finger and proctoscope. Every case of rectal bleeding should be subjected to physical examination as soon as reported to the physician. From the nature of the organ, the operation, even in the early stages, is necessarily extensive. The results are best when performed in two stages, a preliminary colostomy and a subsequent excision of the rectum, but if the disease is detected before it is extensive the function of the anus can frequently be preserved and the colostomy may then be allowed to close.

Cancer of the pancreas, liver or gall-bladder

is rare, and is inoperable except when incipient cancer of the gall-bladder is discovered in the process of removing gallstones.

Cancer of the breast presents a very different picture from that of the digestive organs. It is one of the most common forms and becomes generalized very soon after the actual appearance of malignancy. It may occasionally be malignant when first noticed by the patient, but, on the other hand, it usually has a long and definite pre-cancerous stage, which is almost always easily recognizable and can be removed by an exceedingly trifling operation. Cancer is, perhaps, more controllable in this situation than in any other. The usual stages in the development of the disease are cystic dilatation of one or more of the milk ducts, proliferation of the epithelial lining of the cyst, usually the formation of papillomata within the cyst, extension of the proliferating epithelium into the surrounding tissues, and the axillary or subclavian invasion of the lymphatic glands. During the merely cystic stage the disease is painless, but owing probably to some slight sensation of distention the patient usually finds it with her fingers. She is prone to wait until it becomes painful before seeking the physician, and in the past the profession has been too prone to wait for progressive enlargement and perceptible invasion of the axilla before advising operation.

The modern principle of practice is that any chronic lump in the breast which has persisted for a month without decrease should be removed. This principle will undoubtedly lead to an increase in the number of minor operations, but is justified by their good results and their trifling nature.

In this stage the standard operation is the removal of the cyst and of a pie-shaped bit of breast which contains all the ducts behind the cyst through a small radiating incision, and by a dissection which goes clear of the cyst. The cyst should be immediately submitted to (frozen section) pathological examination, made during the continuance of the operation, and if it is benign nothing further is needed and the patient may be about her business in a day or two. Such an operation involves no danger, practically no mutilation, and should have a hundred per cent. of immunity from recurrence.

In case the immediate pathological examination shows the presence of even a minute quantity of malignant tissue, the entire breast

should be removed with the skin over it and with the pectoral muscles. The incision should then be extended into the axilla, and the lymphatic contents of the axilla and the subclavian space should be removed precisely as though the original disease in the breast were in an advanced stage. At this stage an extensive radical removal has an extremely high percentage of subsequent immunity, probably more than ninety per cent., although a few weeks later and after the disease is clinically recognizable as carcinoma the percentage of permanent immunity is lamentably small.

When an irritation or enlargement of the ducts is central and near the nipple, it may be attended by slight sero-sanguineous discharge from the nipple, and in this case the primary operation, during even the pre-cancerous stage, must necessarily involve the removal of the nipple and the entire breast. This is, fortunately, a rare condition.

When the lump is in the upper and inner quadrant of the breast, in which the scar of a radiating wound would be objectionable, the patient's feelings may be spared by making a curved incision around the outer or lower edge of the breast, separating the organ from the underlying tissues and removing the necessary pie-shaped wedge from the under side of the breast and without invasion of the skin. Though this operation is more extensive and involves a little longer convalescence, it is no more serious and may be preferable for cosmetic reasons.

Cancer of the uterus: The uterus is a very common seat of the disease, which here has two forms,—the squamous carcinomata of the cervix and the adeno-carcinomata of the body. They differ greatly in natural history and also in prognosis.

The squamous carcinomata of the cervix are extremely malignant and extend nearly through the lymphatic ducts of the broad ligaments into the retro-peritoneal glands along the spine. This disease is, however, almost always (probably invariably) preceded by an irritating cervical leucorrhea and consequent erosion of the vaginal surface of the cervix. If prompt and efficient minor treatment and, if necessary, curettage is applied in this stage, the possibility of future malignancy is done away with, but such cases should always be kept under observation for some time after apparently complete relief. When the erosion is so deep and permanent as to resist minor treatment the cervix

should be amputated and submitted to the microscope. If it is found to be benign no further treatment is needed; if the stage of proliferating invasion of the underlying tissues has been reached, an immediate pan-hysterectomy is the standard procedure, and if done very early in this stage, will yield considerable percentages of permanent immunity. The clinical symptoms at this stage are an ichorous and frequently offensive leucorrhea with slight bleeding after trauma, as in coitus or douching, and later, but usually only after the establishment of malignancy, intermittent hemorrhage without trauma. When actual malignancy is present, permanent relief is rare in this situation. The adeno-carcinomata of the body begin as mere non-malignant adenomas of the mucous membranes. They later assume a carcinomatous character and extend throughout the thickness of the uterine wall, accompanied by progressive increase in the size of the organ. In this situation the disease generalizes slowly and mainly by direct extension until at a late stage it penetrates the peritoneal surface of the uterus, and its cells then rapidly disseminate themselves throughout the peritoneal cavity and give rise to secondary papillomatous growths at whatever places they may chance to attach themselves. The only early symptoms of the disease are increased catamenial flowing and, more significant, occasional irregular sanguineous discharges, usually small in quantity and serous in character. The presence of this symptom with an even slightly enlarged uterus makes immediate operation imperative. It should consist of curettage, submission of the fragments to the microscope and complete hysterectomy at the same sitting if indicated. The curettage should be conducted with great gentleness, as the uterine walls are frequently thin and fragile, and the least penetration by the curette would render general peritoneal diffusion inevitable. The prognosis after hysterectomy is almost uniformly favorable in the early stages of the disease (even after some actual carcinoma is present), and is often unexpectedly favorable even in the presence of fully-developed disease, so long as peritoneal perforation has not taken place.

Cancer of the ovary is comparatively rare. Its natural history consists of the development of papillomata and later carcinoma within the cavity of a previously benign cyst. Later it progresses into deep infiltration of the wall of

the cyst, followed usually by an adhesion of the cyst to surrounding organs and penetration of the carcinoma into the attached tissues.

The pre-cancerous stage is the presence of a simple ovarian cyst, and the standard operation at all stages is the removal of the affected ovary. The obsolete process of tapping the cyst to facilitate its removal adds greatly to the danger of recurrence. The prognosis is good so long as the disease is confined within the cyst.

Cancer of the urinary organs is rather rare. Although hematuria may be due to many other causes, its presence in even slight degree should always excite a suspicion of this disease, and should lead to a careful differential diagnosis between stone, new growths and tuberculosis; but lack of time must prevent further discussion of these and the other less frequent sites of malignant disease, and also of the less common sarcomatous forms.

A few words should be said in closing about the very important subject of the palliation of inoperable cancer. Here radiation takes an important place. The x-ray is available for the more superficial forms, while radium exerts a deeper effect. Both forms of radiation are especially apt to be useful in advanced cancers of the cervix, prostate, and about the mouth and nose: also in Hodgkin's disease, which must be rated as closely cognate to the true malignant neoplasms. Radiation relieves pain, decreases hemorrhage and offensive discharges.

Palliative operations are often extremely useful for the same purposes, even in the absence of any hope of cure. The removal of sloughing portions of a superficial growth by the knife, or knife and cautery, often temporarily decreases the patient's suffering. In many situations ligation of a number of the nutrient arteries often leads to decrease of size in the growth and to consequent decrease or even considerably prolonged disappearance of pain. Operations which sidetrack the seat of the growth or lead to decreased motion of the affected organ, such as tracheotomy, gastro-enterostomy, and colotomy often result in great alleviation of symptoms, as do neurotomies or deep infiltration of the plexi which supply the affected part. This subject of palliation of the later stages of this extremely painful and distressing affection has received too little attention and should be considered in the conduct of every case.

Original Articles.

THE ENERGY CONTENT OF EXTRA FOODS.

BY CORNELIA GOLAY BENEDICT, BOSTON, AND
F. G. BENEDICT, BOSTON.

[From the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Massachusetts.]

IN computing the caloric intake of groups of individuals either from a budget or from food supplied at the table, the fact is usually disregarded that food* frequently is taken away from the table or regular place of eating. Personal queries for a number of years and observation of the habit of others have led us to the firm conviction that there is an almost universal custom of taking food of appreciable caloric value other than at the three regular daily meals. This may be assumed to be a definite factor in American life, having its economic as well as its social side. That this extra food habit has become more or less general is further demonstrated by the enormous sales of alcoholic and temperance drinks, candy, ice cream, pies, fruits, sugar buns, etc.

The American soda fountain which has been increasingly developing for the last two decades, together with the preparation and sale on an extensive scale of ice cream, has perhaps contributed more than any other one factor to the general use by the public of extra calories away from the family table.

There is, moreover, in a large cosmopolitan city a great variety of foods in a palatable form without any preparation, and specific information regarding those most generally used is absolutely necessary. An institution so thoroughly established as the English afternoon tea would of course be recognized by all as a legitimate, appreciable source of energy in computing the total daily diet. But with a vast number of individuals all energy-containing foods, or drinks, taken other than at the table three times a day are usually not taken into account. In no instance is this more strikingly shown than in the ordinary record of the physician examining the patient at his office. The patient will invariably report the foods eaten at the three meals at the table, but will almost invariably neglect the extra edible materials taken outside of the house.

Rarely does the physician himself think of this factor, and it is safe to say that when he does he is surprised, as indeed the patient is, at the relatively large amount of material taken away from the table.

The casual way in which these food materials are taken leaves one with the impression that they cannot play any important rôle in the contribution of total energy intake in the course of the day. As a matter of fact, this is fundamentally wrong. It is wholly illogical to disregard energy eaten in a handful of nuts, a banana, a glass of soda water, a portion of ice cream, or even alcoholic beverage, for in a daily quota of calories, the calories in these incidentals should be as legitimately computed and included, as those in the slice of bread taken in the more conventional manner at the family table. Indeed much of the evidence thus far submitted would go to show that these extra food calories can form an appreciable percentage of the total daily requirement. Since a continuous excess of foods amounting to but five per cent. would invariably result in obesity, and is distinctly in the nature of overeating, the extra food consumption must not be neglected in any consideration of excess food or obesity.

On the other hand in many instances, these excess calories undoubtedly lessen the demand for caloric intake at the regular three meals, and thus become a legitimate factor in the supply of the maintenance food for the day. Under these conditions it can be seen that actual quantitative knowledge of the food value of these extra foods is essential, indeed of prime importance. Based in large part upon the computed composition of extra food materials, considerable evidence is already accumulated to show that these extra foods may form at least ten per cent. of the total daily intake. Perhaps one of the most striking illustrations of this is an admirable study made by Gephart¹ of boys at St. Paul's School, Concord, where it was found that out of a total intake of approximately 5000 calories the boys took 640 calories in the form of extras such as candy, chocolate, and sugar buns which came from the shops in the vicinity of the school grounds. Although lacking a complete quantitative determination the questions asked of the members of the dormitory in which the recent dietary study at Vassar College was made, indicate that a con-

* In the series of articles of which this is the first, we purpose using the expression "extra food" for all sources of energy for the body taken between meals.

siderable number of the students were inclined to take noticeable amounts of extra foods, which in all probability comprised not far from ten per cent. of the total daily intake.

In an unpublished research conducted in connection with a series of reduced diet experiments at the International Y.M.C.A. College at Springfield, Mass., the Nutrition Laboratory staff noticed that with the ordinary college student, on an uncontrolled diet, approximately ten per cent. of the total calories of the day were obtained in the form of edible material other than that taken at the regular dining hall. Although the studies cited have been confined for the most part to boys in schools or to college students, it may not be unreasonable to assume, for the purpose of discussion at least, that approximately ten per cent. of the calories of the day are taken away from the table by the general public.

In industrial centers, undoubtedly, lunches from special lunch-stands take the place of the home table meal especially at mid-day. This noon lunch may, however, be legitimately considered as the third meal of the day, and articles thus eaten should not be confused or considered as under extra foods. Recently there is a tendency on the part of large industrial organizations to provide a more or less standardized meal at the noon hour. But nevertheless it can be seen that the midday meal in industrial centers at least is in large part the taking of a ration not easily computed and not easily included in a classification of the caloric intake of the day.

For the purpose of computing the rate of daily intake of food, however, the nature of this midday meal should be better known. The Nutrition Laboratory feels that a quantitative study of the most popular extras and their combinations is essential in indicating not only the amount of the noon lunch, when recognized as stated above as a third meal of the day, but particularly as indicating the character of the extra foods not ordinarily considered as a factor in the total daily caloric intake.

The problem divides itself into two, namely, the study of the character, nature, the per cent. of the nutrients of the foods ordinarily consumed at midday lunches, the amounts, and the analysis of these lunches to see whether they are balanced rations or not; and second, the analysis of the several extra foods other than those commonly eaten at noonday lunches,

with particular reference to chocolate, candy, sweet drinks, etc.

Thanks to a long series of investigations on the part of the U. S. Dept. of Agriculture, we know with a reasonable degree of accuracy the caloric intake of the staple food materials, such as wheat, bread, meat, sugar, etc. From the deservedly oft-quoted tables of Atwater and Bryant the computations of the daily intake of calories from the budget, from the inventory of the house, before and at the end of the test may easily be made. These tables are, however, deficient in data with regard to many of the modern forms of preparation used by individuals with considerable freedom from day to day. We believe that a study should be made of these materials.

Such a study should comprise analyses and weights of portions of all extra foods and drinks, both non-alcoholic and alcoholic. In this report, we purpose studying the group of the special cooked materials, extra foods, that are frequently consumed by the American public. We hope, subsequently, to consider many of the standardized lunches, or ingredients of lunches, and to obtain some evidence with regard to the caloric intake in many of the alcoholic beverages.

In the beginning of this study it seemed best to commence with the simplest elements such as crackers, ready-to-eat materials, chocolate, candies, and more particularly the products of the American soda-fountain. Emphasis will primarily be laid upon the energy content. But wherever appreciable amounts of protein are to be found, these will, as a rule, be given. At present in the computation of dietaries, indeed, in the apportionment of food materials among the different individuals, the significance of any difference between fat and carbohydrate as sources of energy does not seem as important as it is where extreme restrictions of fat are necessary, as in the other warring countries. Consequently, we have not in this first report made an effort to lay any emphasis whatsoever upon the relative proportion of fat and carbohydrates in the various ingredients. On the other hand, owing to the marked tendency to the general restriction of protein, we have given the protein contents where it is appreciable.

METHOD.

The general object was to secure so far as possible representative samples of the various

food materials which we are here to report. Certain of these such as chocolate, candies, and particularly crackers, are manufactured on a large scale by concerns of national reputation, and are very well standardized. These materials being for the most part relatively water-free can be purchased in standard packages and found in practically every store in the United States. Unbroken packages were purchased, weighed, measured, and carefully aliquoted for analyses. Certain of the regularly bottled beverages were likewise purchased in standard form and analyzed as received. The products of the soda-fountain are for the most part mixed by the several operators or servers at the time purchased, and consequently can be only approximately standardized. It became necessary therefore to secure a sufficient number of these samples to serve as a probable measure of the energy content of these various mixtures.

The method of collecting these is as follows: At a soda-fountain two or three glasses of soda-water or "sundaes" were purchased and taken to a waiting automobile as if for immediate consumption. As there was nothing to indicate to the clerk at the fountain that the mixtures were for study, there was no opportunity given him to prepare them to make a special impression. In the automobile were numbered preserving jars into which the sodas were emptied, care being taken to transfer all that would ordinarily be consumed, and in a note book under the number of the jar was recorded the description of the soda, place of purchase, and price. This proceeding was repeated at various fountains. At the laboratory the jars as brought in were weighed, then emptied and rinsed in boiling water (to remove all fat), and the empty jar weighed. The sodas were placed in a drying oven and dried sufficiently to allow combustion. In some cases, where there was a large amount of free fat after drying, a known amount of powdered pumice stone as an energy-free fat absorbent was mixed with the material in order to secure a homogeneous sample. Where there were nuts or fresh fruits the partially dried material was rubbed in a mortar.

With plain and milk cake chocolates it was only necessary to cut pieces of the desired weight. Nut chocolates were put several times through a meat chopper and then sampled.

Crackers were put through a meat chopper and samples of the resulting powder pelleted. Ginger ales, grape juices, etc., were dried and as the resulting material was homogeneous it prevented no difficulty in sampling. In a few cases of the latter it was necessary to add a known weight of sucrose as a kindler to effect combustion.

ANALYSES.

In this report we record only the determinations of the nitrogen where appreciable quantities of protein are to be expected, and the heat of combustion. The nitrogen was determined by the usual Kjeldahl method.

The heat of combustion we consider of prime importance here. Usually the calories of food materials have been computed by analyses, multiplying the amount of carbohydrates, fat, and protein by the several factors in computing the calories. This method, however, is subject to a number of errors. In the first place the water content even of dried material is very variable. Second, a complete analysis, of each substance is essential and not only tedious but is time-consuming and difficult to make. Third, all the possible errors in computation fall upon the carbohydrates and not upon the water or ash. It is necessary to determine directly *water*, *ash*, and *fat*, and *protein*. The errors in all analyses fall by difference upon the heat-forming carbohydrate and not upon the water or ash, that is, the energy-free ingredients.

On the other hand, if the heat of combustion is determined directly it gives a true value of the energy content and needs correction only for that fraction of the protein calories which are not available to the human body but excreted unoxidized as urea and allied compounds in the urine.

We determined directly the heat of combustion by the calorimetric bomb which was formerly prohibited in most laboratories as it required an elaborate equipment and considerable time and skill. More modern technique reduces the time element very appreciably. The calorimeter² devised in the Nutrition Laboratory uses the adiabatic principle employing an electric heater in the outer water-bath. As the apparatus is used by us, one operator and one assistant* can easily make four combustions

* It is a privilege here to express our warm appreciation of the most intelligent and faithful cooperation of Miss Marion L. Baker.

with computations in one hour. The calorimetric bomb is thoroughly standardized by frequent combustions with pure sucrose from the Bureau of Standards. All calories are computed at or near 20° Centigrade.

In the combustion of the several samples, sufficient material was selected to produce approximately a temperature rise of 1.5° Centigrade, the hydrothermal equivalent of the bomb calorimeter and water was 2400 grams and the total heat developed inside the bomb was usually not far from 3½ to 4 calories. Hence in most materials about one gram of material could be used. In the case of fat substances from 0.7 to 0.8 grams were used. With homogeneous samples, the difference in the heat of combustion with duplicate determinations is almost invariably inside of one per cent. In some of the more complicated foods, especially those containing fat materials, and those difficult of sampling, differences of two to three per cent. were not infrequent.

The chocolates used were such as could be purchased in different stores in Boston and vicinity, and comprised sweet chocolate, milk chocolate, and nut chocolate.

SWEET CHOCOLATE.

- No. 4. Whitman's Sweet Chocolate Cigarettes, 10 sticks in package, each stick 67 mm. long by 7 mm. diameter.
- No. 1. "Dot" Sweet Chocolate, Walter Baker Co., 132 x 67 x 7 mm., 18 sections.
- No. 8. Baker's Caracac Sweet, 131 x 61 x 5 mm., 18 sections.
- No. 9. Henry Wenz' Coffee Chocolate, 2 cakes, each 105 x 60 x 5 mm.
- No. 10. Vanilla Chocolate, Henry Wenz, 137 x 77 x 6 mm.
- No. 11. S. S. Pierce Co. Overland Vanilla Chocolate, 142 x 70 x 5 mm.
- No. 12. S. S. Pierce Co. Overland Coffee Chocolate, 142 x 70 x 5 mm.
- No. 13. Bunch 4 cakes, tied up in tinfoil, each cake 36 x 20 x 8 mm.
- No. 14. Baker's Sweet Vanilla Chocolate Croquettes, 16 cakes, 55 mm. diameter x 4 mm. thick.
- No. 7. Baker's Sweet Chocolate, Vanilla, 188 x 90 x 11 mm., in 6 sections.
- No. 15. Pierce's Overland Chocolate Croquettes, 20 cakes, each 56 mm. diameter x 4 mm. thick.
- No. 56. Puritan Sweet Chocolate, 38 x 21 x 6 mm., from penny-in-the-slot machine.
- No. 105. Stollwerck's Gold Brand Chocolate, 145 x 71 x 7 mm., 40 squares.
- No. 106. Chocolate Cinquième, Walter Baker Co., 143 x 71 x 8 mm., 6 sections. For use also in making beverage.
- No. 142. Sweet Chocolate, Park & Tilford, 145 x 75 x 10 mm., 6 sections.

MILK CHOCOLATE.

- No. 2. Hershey's Sweet Milk Chocolate, 142 x 74 x 2.5 mm., 18 sections.
- No. 5. F. L. Cailler's Gemine Sweet Milk Chocolate, 160 x 65 x 7 mm., 24 sections.

- No. 6. Peter's, The Original Sweet Milk Chocolate, 147 x 67 x 4 mm., 18 sections.
- No. 139. Borden's Milk Chocolate, 160 x 80 x 4 mm., 24 sections.
- No. 141. Auerbach's Milk Chocolate, 145 x 75 x 5 mm., 9 sections.
- No. 143. Sweet Milk Chocolate, Park & Tilford, 164 x 72 x 6 mm., 24 sections.
- No. 149. Nestlé's Sweet Milk, Peter Cailler Kohler, 235 x 116 x 15 mm., 16 sections.

NUT CHOCOLATE.

- No. 16. Lovell & Covell's Nut Chocolate, 78 x 45 x 14 mm.
- No. 17. Lowney's Almond Milk Chocolate, 116 x 44 x 5 mm., 5 sections.
- No. 18. Lowney's Nut Milk Chocolate, 105 x 40 x 8 mm., 6 sections.
- No. 24. Choco-Frnto, Frank N. Dallinger & Co., 132 x 68 x 3 mm., of chocolate, malt, dried fruit and nuts.
- No. 135. Stollwerck's Almond Sweet Milk Chocolate, 145 x 53 x ca. 8 mm.
- No. 136. Nut Tootsie Rolls, Stern & Saalberg Co., 6 cylinders, diameter 21 x 16 mm. thick.
- No. 137. Borden's Almond Sweet Milk Chocolate, 112 x 41 x ca. 5 mm.
- No. 140. Touraine Chocolate Nut Bar, 114 x 41 x ca. 6 mm.
- No. 144. Peter's Sweet Milk Chocolate with toasted almonds, 157 x 56 x ca. 8 mm.
- No. 145. Cailler's Sweet Milk Chocolate with toasted almonds, 120 x 45 x ca. 4 mm.

GINGER ALES, GRAPE JUICES, ETC.

- No. 103. Pureoxia Ginger Ale, Pureoxia Co.
- No. 104. Moxie.
- No. 119. Welch's Grape Juice, The Welch Grape Juice Co.
- No. 120. Lakeside Grape Juice, Harris Grape Juice Co., with about 2% cane sugar.
- No. 121. Armour's Grape Juice.
- No. 122. Phez Loganberry Juice, with sugar, Pheasant Fruit Juice Co.
- No. 123. Red Wing Grape Juice, Puritan Food Products Co., less than 2% granulated sugar.
- No. 124. Schühle's Grape Juice, Schühle's Pure Grape Juice Co.
- No. 125. The Daggett Co., Pure Grape Juice, Boston, "granulated sugar added."
- No. 146. Cantrell & Cochrane's Ginger Ale, aromatic.
- No. 147. Cliquot Club Ginger Ale, Cliquot Club Co.

PLAIN CRACKERS.

- No. 27. Butter Thin, Loose-Wiles Biscuit Co., carton of 33, 52 mm. diameter x 3 mm. thick.
- No. 36. Saltine Biscuit, National Biscuit Co., carton of 46, 52 x 52 x 5 mm.
- No. 37. Graham Crackers, National Biscuit Co., carton of 35, 66 x 66 x 4 mm.
- No. 38. Inceda Biscuit, National Biscuit Co., carton of 21, 70 x 70 x 6 mm.
- No. 88. Oatmeal Crackers, Loose-Wiles Biscuit Co., in bulk, each cracker 68 x 70 x 4 mm.

SWEET CRACKERS.

- No. 25. Tokens, National Biscuit Co., carton of 52, each 47 x 47 x 2 mm.
- No. 29. Five O'clock Tea Biscuit, National Biscuit Co., carton of 18 vanilla and 16 chocolate crackers, each 50 mm. in diameter by 3 mm. thick.
- No. 32. Educator Ginger Snap, a carton of 36, 40 mm. diameter by 4 mm. thick.
- No. 33. Educator Sweet Graham Crackers, carton of 34, 47 mm. diameter by 5 mm. thick.
- No. 34. Zu-Zu Ginger Snaps, National Biscuit Co., carton of 27, 45 mm. diameter by 5 mm. thick.

- No. 35. Lemon Snaps, National Biscuit Co., carton
of 27, 45 mm. in diameter by 5 mm. thick.
No. 86. Macaroons.
No. 138. Lady Fingers, double, each 83 x 25 x 15 mm.

MIXED CRACKERS.

- No. 20. Al Fresco Cheese, National Biscuit Co., in cartons of 60, each 60 x 23 x 5 mm.
- No. 22. Peanut Sandwich, National Biscuit Co., a carton of 17 sandwiches, 2 crackers with peanut filling, each sandwich 48 mm. diameter by 44 mm.

FRUIT CRACKERS.

- No. 23. Fig Sui-Bar, Loose-Wiles Biscuit Co., carton of 16, each 43 x 45 x 10 mm., with fig filling.

- No. 87. Hydrox, bought in bulk, a chocolate cracker with cream filling, each 50 mm. in diameter by 5 mm. thick.
- No. 89. Nabisco, chocolate flavor, tin of 36, like No. 31, but larger size, each wafer being 90 x 30 x 5 mm.
- No. 149. Perfetto Assorted Sugar Wafers, Loose-Wiles Biscuit Co., a tin of 28, each 73 x 21 x 5 mm.

The results of the determinations of the heat of combustion, of the various specimens of chocolates are recorded in Table I. The chocolates are arranged in the table in three differ-

TABLE I.
CHOCOLATES.

		PLAIN						
LAB. No.	NAME	NET WEIGHT	CALORIES PER GRAM	TOTAL CALORIES*	CALORIES PER SECTION	COST, CENTS	CALORIES FOR TEN CENTS	NITROGEN PER CENT.
		GRAMS						
4	Whitman, Cigarettes	41.6	5.416	225	22.5	15	150	
1	Walter Baker, Dot	75.6	6.198	468	26.0	8	585	1.10
8	" " Caracas	52.0	5.592	291	16.0	5	581	
7	" " Vanilla Sweet	234.1	5.649	1323	220.5	21	629	
14	" " Croquettes	220.2	5.570	1226	76.5	28	438	0.60
106	" " Cinquième	92.5	5.559	514	85.5	7	735	
13	S. S. Pierce, Cakes	25.6	5.660	145	31.5	5	289	
9	Wenz, Coffee	55.9	6.046	338	169.5	15	225	0.90
10	" Vanilla	57.9	6.018	348		10	348	
12	Overland Coffee	37.5	5.939	222		15	148	
11	" Vanilla	40.2	6.006	242		10	242	0.90
15	" Croquettes	216.8	5.904	1281	64.0	40	320	0.90
56	Puritan, Penny size	5.8	5.826	34	34.0	1	337	
142	Park & Tilford	118.8	5.391	641	106.5	10	641	
105	Stollwerck	83.4	5.876	490	12.0	10	490	
		MILK						
6	Peter's	37.6	5.849	220	12.0	10	220	
5	Cailler's	80.6	5.706	460	19.0	10	460	1.06
2	Hershey's	44.0	5.715	251	14.0	6	419	
143	Park & Tilford	77.6	5.910	459	19.0	12	382	
139	Borden	71.1	5.732	408	17.0	15	272	
141	Auerbach	32.8	5.468	180	20.0	6	299	
149	Nestlé	421.0	5.728	2412	151.0	59	409	
		NUT						
3	Waneta, Milk	47.5	6.291	299		6	498	1.20
16	Lovell & Covell	54.6	5.758	314		6	524	1.60
17	Lowney's Milk Almond	33.4	5.761	192		6	321	1.10
18	" " Nut	38.1	5.769	220		6	366	1.40
144	Peter's Milk Almond	73.0	6.169	450		12	375	1.80
145	Cailler's Milk Almond	30.4	5.940	181		6	301	1.20
135	Stollwerck's Milk Almond	83.3	6.015	501	100.0	12	417	1.30
136	Nut Tootsie Rolls	44.9	4.850	218	36.5	6	363	1.40
137	Borden's Almond Milk	31.7	6.040	191	38.5	6	319	1.60
140	Touraine Nut Bar	35.6	5.992	213		6	355	1.70
24	Choco-Fruto	54.6	4.300	235		15	157	0.60
No. 26.	Frotana, National Biscuit Co., carton of 24, each 40 x 50 x 5 mm.	ent groups, plain, milk, and nut chocolate. No special order has been observed in their arrangement in the tables and no special significance is to be attached to the cost or size of package or net weight, which obviously would vary with the different manufacturers' standardized packages. All analyses are based upon the air-dried material, and in Table I are recorded, first, the net weight; second, the calories per gram. From these are computed the						
No. 28.	Fig Newtons, National Biscuit Co., carton of 15, each 42 x 42 x 9 mm.							
SUGAR WAFERS.								
No. 19.	Educator Kremox, a carton of 10, chocolate flavored, 5 of which were 45 x 45 x 7 mm.; 5, 35 mm. in diameter by 7 mm. thick.							
No. 21.	Anola Wafers, National Biscuit Co., tin of 24, each 43 x 35 x 5 mm.							
No. 30.	Nabisco, vanilla flavor, National Biscuit Co., tin of 33, 64 x 19 x 15 mm.							
No. 31.	Nabisco, chocolate flavor, tin of 35, 65 x 19 x 5 mm.							

total calories, and since practically all of the chocolates are by the manufacturer subdivided more or less into sections and are eaten frequently as sections, we have given the calories per section. Finally, as of general economic interest we append the cost per package and the calories obtainable for 10 cents.

The amount of nitrogen present in these several chocolates is, in those other than nut, very small. In the milk chocolates, since a certain amount of milk powder is usually incorporated in these products, we find the percentage of nitrogen averaging not far from 1.5 or corresponding to a total of not far from 9 per cent. of protein. Considering first the plain chocolates with regard to the special calorimetric studies, we find that the calories per gram range from a minimum of 5.391 in the case of sample No. 142 to a maximum of 6.198 in the case of sample No. 1; average of 15 samples is 5.8 calories. Although we have not determined directly the fat percentages in these, the differences in calorific value are in all probability to be ascribed to differences in the proportion of fat* in the product. A general average figure would indicate not far from 5.6 calories per gram for plain chocolates. The total calories obviously vary greatly and in direct proportion to the net weight of the package. Similarly, the calories per section are determined solely by the subdivision of the package by the manufacturer.

From the economic standpoint† the calories for 10 cents are of unusual interest. They range from a minimum of 148 calories in the case of sample No. 12 to a maximum of 735 calories in the case of sample No. 106. It is thus apparent that by proper selection of sweet chocolate, one may obtain a fairly large number of calories for 10 cents. It is very important, however, to bear in mind that the sale value of these products in large part depends upon their flavor and it is not justifiable to compare these chocolates solely upon the basis of the economic value of calories per gram.

With regard to the milk chocolates, the calorific value of the seven samples here recorded

averages 5.7 calories. The total calories excepting in the case of sample No. 149 do not differ so widely and the calories per section have a narrow range of from 12 to 20 calories. Computing the calories for 10 cents, we find the values range from 220 to 460, meeting neither of the extremes noted with the plain chocolates. It is obvious again that the value of milk chocolates must in large part be in pleasing the palate and there is nothing whatever in this record of analyses to show any superiority of one quality over the other.

With the nut chocolates a rather large number were analyzed. Here the calories per gram average 5.7. The two exceptions in the table noted herewith are No. 136 and No. 24, both of which would, strictly speaking, not necessarily come under the head of nut chocolates. The number of calories for 10 cents ranges from 157 to 524. The nitrogen percentages here average not far from 1.5 or approximately 9 per cent. of protein. Since the average net weight of each package is, however, not far from 50 grams, it can be seen that a whole package would contain on the average hardly more than 4 1-2 or 5 grams of protein. Criticism must be directed against the absurd statement accompanying sample No. 24 "affording a well balanced full meal or two substantial lunches." The whole package contains but 235 calories and would have hardly more than 2 grams of protein, facts which do not bear out in any way the claim of the manufacturer.

Many of these cakes as recorded in Table I are of such size, 50 to 60 grams, as to be eaten in entirety. Indeed, it is not uncommon to know of individuals eating a good share of some of the larger packages, and hence it is of considerable importance to note the very large number of calories that can be thus obtained. Few of the original packages contain less than 200 calories. Several, at least, contain more than 1200. Five hundred calories eaten at once in one of these packages would be by no means considered a large portion, and yet it must be borne in mind that 500 calories is nearly one-third the basal caloric requirement of normal man and may represent from one-fifth to one-sixth of the total daily requirements of the average man not at severe muscular labor.

Crackers in different varieties are a form of extra food taken in large amounts, particularly by women. These are frequently consumed in connection with the afternoon tea or, indeed, in

* Complete analyses of the various kinds of chocolate have been reported by Drs. Jenkins, Street, Bailey and Winton, in the annual reports of the Connecticut Agricultural Experiment Station at New Haven, especially for 1903 and 1911. Physicians may well familiarize themselves with the wholly exceptional work in the analysis of food preparations, including diabetic foods, continuing at this station.

† In the cost, as indicated in Table I, and the calories per 10 cents, it should be borne in mind that not a few of these articles have had a material increase in price recently. Thus many packages that have sold for 5 cents now sell for 6, and hence the economic relationship of these figures must be interpreted in the light of condition of present (1918) prices.

combination with not a few of the soda-fountain products. We have combined in Table II the analyses of a number of the more commonly used forms of crackers, in which we give the weight per cracker, calories per gram, calories per cracker, and in a number of instances the percentage of nitrogen, although in the majority of cases this is very low. The calories per gram range from 4 to 5, with a general tendency for the average values to lie about mid-

TABLE II.
CRACKERS
PLAIN

LAB. No.	NAME	WEIGHT PER CRACKER GRAMS	CALORIES PER GRAM	CALORIES PER CRACKER	NITROGEN PER CENT.
36	Saltine	3.8	4.682	18.0	1.5
37	Graham	9.6	4.659	44.5	1.3
38	Uneeda	6.6	4.500	29.5	1.4
27	Butter Thin	4.5	4.785	21.5	1.4
88	Oatmeal	10.0	4.565	46.0	1.4
SWEET					
25	Tokens	3.7	4.469	16.5	1.2
29a	5 O'clock Tea (vanilla) ..	4.9	4.594	22.5	1.1
29b	5 O'clock Tea (chocolate)	5.0	4.688	23.5	1.2
32	Ginger Snaps	3.2	4.242	13.5	0.9
33	Sweet Graham	5.2	4.498	23.5	1.4
34	Zu-Zu	4.6	4.403	20.0	1.1
35	Lemon Snaps	4.0	4.482	17.5	0.9
FRUIT					
23	Fig Sni-Bar	12.4	3.889	48.0	0.7
26	Frotana	8.2	4.038	33.0	0.7
28	Fig Newtons	15.2	3.888	59.0	0.6
MIXED					
20	Al Fresco Cheese	1.9	4.720	9.0	2.6
22	Peanut Sandwich	10.2	4.970	51.0	2.1
SUGAR WAFERS					
19	Educator Kremox*.....	7.4 { 12.8 {	4.820 { 35.5 {	61.5 { 35.5 {	0.8
21	Anola	4.5	5.370	24.0	1.5
30	Nabisco, vanilla	2.1	5.021	10.5	0.8
31	Nabisco, chocolate	2.4	5.018	12.0	0.8
87	Hydrox	11.3	5.025	56.5	0.7
148	Perfetto	2.8	5.096	14.5	
138	Lady Fingers	16.4	4.202	68.5	1.4
86	Macaroons	8.5	5.082	43.5	1.4
89	Nabisco, chocolate	4.6	4.972	23.0	0.6

* Two sizes.

way between these two figures. Since these crackers are usually purchased in standard packages, and since it is rare that anyone eats any considerable proportion of the package, it seems inadvisable to put in the cost per package or the calories per 10 cents.

In considering these crackers it is, however, important to note the special conditions obtaining in the American manufacturing situation at the present day, where wheat substitutes must be employed and undoubtedly some of these standard products are somewhat different from those used in ante-war conditions, and some are not now obtainable in the market, but

it is not impossible that the original formulas may be returned to when the raw materials become more readily accessible. They do represent, however, the composition at this date, 1918, and from the heat of combustion per gram we have no reason to believe that any great change in either the heat of combustion or the proportion of protein would be introduced by the resumption of the original formula.

The products of the American soda-fountain are of special interest not only for their increasing consumption by the American public but their increased use during the summer. Although we undoubtedly have here again to deal somewhat with special war conditions, inasmuch as there is a curtailment of sugar and a distinct tendency to lessen the amount of pure cane sugar used, it must be recognized that the calorific values of the several drinks here recorded represent probably minimum rather than maximum values.

Considering soda water first, we have recorded the material in Table III. Usually three

TABLE III.
SODA WATERS

LAB. No.	FLAVOR	TOTAL CALORIES	COST, CENTS
PLAIN			
46	Chocolate	203	5
95	"	268	5
93	"	172	5
45	Vanilla	239	5
WITH CREAM			
73	Chocolate	357	10
42	"	247	5
101	"	222	5
96	"	109	5
71	Vanilla	230	5
72	"	167	10
79	"	170	5
81	"	134	5
102	"	197	5

kinds of soda water are sold, plain soda water, i.e., carbonated water, with a plain syrup, usually either vanilla or chocolate; second, to this combination is added "cream" which may range in composition from anything like top milk to a very heavy cream; and third, and becoming increasingly important each year is the addition of ice-cream. The plain soda-waters analyzed comprise three specimens of chocolate and one of vanilla. On the average not far from 200 calories are found in each glass with a cost of 5 cents per glass. The addition of cream in the second part of Table III has in some instances noticeably brought up the calories, such as, for example, in sample No. 73.

Yet, on the other hand, with vanilla, except for sample No. 71, the calories per glass run distinctly low, nearer 160.

The increasing use of ice-cream soda led to our analyzing a relatively large number. These are recorded in Table IV. As before, the most generally sold flavors are chocolate or vanilla, either vanilla syrup with vanilla ice-cream or chocolate syrup with vanilla or chocolate ice-cream or, in the spring season, fresh fruit,

TABLE IV.
SODA WATERS.
ICE CREAM (WITH CREAM)

LAB. No.	FLAVOR	TOTAL CALORIES	COST, CENTS
77	Chocolate, chocolate ice cream ...	467	15
80	" " " " ...	443	15
82	" " " " ...	251	10
50	" " " " ...	348	10
100	" " " " ...	377	10
74	" vanilla ice cream ...	354	10
44	" " " " ...	314	10
48	" " " " ...	374	10
98	" " " " ...	349	10
91	Fresh Strawberry, vanilla ice cream	436	15
76	Vanilla, vanilla ice cream	321	10
78	" " " "	394	15
43	" " " "	286	10
47	" " " "	385	10
49	" " " "	322	10
99	" " " "	286	10
97	" " " "	202	10
92	" " " "	399	15

chiefly strawberry, with either strawberry or vanilla ice-cream. At or about the time these samples were taken there was a general movement in this vicinity to increase the price from 10 to 15 cents, so 5 specimens costing 15 cents appear in this list. It is perhaps significant that these 5 specimens all have a rather high calorific value. One would expect that in the chocolate material with the proportion of fat in chocolate somewhat larger than in vanilla, higher values would be found, and the table indicates that this is the case. Two of the chocolate samples show 467 and 443 calories respectively, and none of the vanilla samples show this value. It is quite clear in collecting these samples that there was rather marked individuality on the part of the several clerks as to the amount of ice cream served, or the amount of cream added. The products are, therefore, by no means standardized, yet it is safe to assume that in the average ice cream soda, chocolate flavor, 350 to 400 calories are obtained; while with the vanilla, the average will run nearer 325. Although the actual highest number of calories was obtained in the 15 cent portions, it is important to note that one vanilla ice-cream soda gave 385 calories for 10 cents

and one chocolate 377, so the number of calories is by no means proportional to the cost. Here again flavor, neatness of environment, and prestige determine the selling price.

Another popular product of the American soda-fountain is the so-called "sundae" or college ice. These are becoming more and more extensively used, permit of a very large variety, and only representative samples could be analyzed. Since a very large number of them are served with crushed or chopped nuts, it seemed advisable to determine the amount of protein as well as energy in each portion. These are recorded in Table V. The almost universal

TABLE V.
SUNDAES

LAB. No.		TOTAL CALORIES	PROTEIN, GRAMS	COST, CENTS
<i>Chocolate ice cream</i>				
108	Chocolate sauce, walnuts	327	6	15
109	" " " "	516	6	15
111	" " " "	433	5	15
114	Fudge sauce, walnuts	412	6	20
116	Marshmallow sauce, walnuts ...	383	4	15
117	" and chocolate sauce, walnuts	429	4	15
127	Maple walnut sauce	419	4	15
130	Strawberry sauce	235		10
131	" " " "	225		10
<i>Strawberry ice cream</i>				
107	Fresh strawberry sauce	277		15
110	" " " "	406		15
126	Strawberry sauce	257		15
134	" " and marshmal- low	412		15
<i>Vanilla ice cream</i>				
112	Fresh strawberry sauce	334		15
113	Marshmallow sauce, walnuts ...	350	4	20
115	Chocolate sauce, walnuts	396	9	15
118	Marshmallow sauce	251		15
128	Chocolate sauce, nuts	371	7	15
129	Strawberry sauce	304		15

price for the "sundae" or college ice is at present 15 cents. As can be seen from the table, a large variety is served. The calories per portion range from the lowest of 225 to as high as 516. It is of great importance to note that with the ordinary college ice it is not impossible to secure from 400 to even more calories in each portion. In only 5 cases did the calories run below 300. It is also of interest to note that in each portion as now served with chopped nuts, one may obtain from 4 to 9, average of not far from 6, grams of protein. With the present tendency towards restriction in protein and the attempt to adjust the nation on a much lower protein level, the amount of protein obtained in a college ice or "sundae" must certainly be recognized.

Another product having an enormous sale, particularly among children, is the so-called "ice cream cone." Three of these are analyzed and reported in Table VI. The uniform sale price is 5 cents.

TABLE VI.
ICE CREAM CONES

LAB. NO.	FLAVOR	TOTAL CALORIES	COST, CENTS
94	Vaulla ice cream	82	5
132	Chocolate ice cream	132	5
133	Vanilla ice cream	114	5

The three samples varied considerably in the total number of calories, averaging not far from 115. It is thus seen that at 5 cents they do not present a particularly economic source of energy.

Although this report deals more particularly with the beverages dispensed from soda-fountains rather than with bottled soda waters, a most popular bottled beverage is the so-called "ginger ale," of which three specimens were analyzed. They are given in Table VII here-

TABLE VII.
TEMPERANCE OR "SOFT" DRINKS.

LAB. NO.	NAME	TOTAL CALORIES	COST, CENTS	CONTENTS CLAIMED
103	Pureoxia Ginger Ale	133	10	14 oz.
146	Cantrell & Cochrane Ginger Ale	78	20	9.6 oz.
147	Clicquot Club Ginger Ale	136	15	15½ pt.
119	Welch's Grape Juice	158	15	½ pt.
120	Lakeside Grape Juice ...	200	10	6 oz.
121	Armour's Grape Juice	315	19	1 pt.
123	Red Wing Grape Juice ..	368	30	1 pt.
124	Schühle's Grape Juice ...	331	22	1 pt.
125	Daggett Co. Pure Grape Juice	398	22	1 pt.
122	Phez Loganberry Juice ..	529	35	12 oz.
104	Moxie	322	20	1 pt., 10 oz.

with. The total calories range from 78 in the case of an imported ginger ale to 136 in the case of a domestic brand. The price varies considerably, but again is in large part determined by the flavor and in no sense by the number of calories. The total quantity, likewise, varies considerably. What is of special importance, however, is to note that by drinking a bottle of ginger ale one may obtain as high as 135 calories.

Another very commonly used beverage is the so-called "Moxie." A large original bottle of Moxie contained 816 grams, and is supposed to yield approximately 7 glasses of special standard type, in which this beverage is almost invariably sold. The total calories in a large bottle are 322, giving, therefore, not far from 40 to 50 calories per individual glass.

In recent years the use of unfermented grape juice has enormously increased. Usually this consists of the expressed juice of the grape with but relatively small amount, if any, of cane sugar. The bottles are usually of either pint or half-pint size, and analyses of 6 samples in Table VII herewith show that the total calories in 1-pint are reasonably constant, varying only from 315 to 398 calories. In the half-pint specimen, No. 119, the calories would correspond to 316 calories per pint. Since, however, grape juice is rarely consumed directly without addition of water, it is only of importance to note that in the average pint bottle of grape juice one may expect to find approximately 350 calories.

A new product that has been extensively introduced in recent years is the expressed Loganberry juice, sold under the trade name of "Phez." This as bottled is mixed with sugar and is usually consumed mixed with water. The bottle is marked as containing 12 fluid ounces, and the calorific value, owing to its greater concentration, is essentially twice that of an equivalent volume of grape juice.

GENERAL DISCUSSION.

The wide variety of products of the American soda-water fountain and so-called "soft" or "temperance" drinks would make it impossible to record with any great degree of accuracy the exact composition of many of these materials. On the other hand, we have given in these tables a sufficient number of analyses to show that we have to deal with a rather appreciable number of calories in the ordinary serving or portion of many of these beverages. With the ginger ales or with Moxie this, perhaps, does not play any great rôle, possibly with the grape juice, owing to its dilution with water. But certainly with the plain or ice cream sodas or college ices, the caloric content is of real significance. The patient may report to the physician an extremely light breakfast, the fact that no lunch whatever is taken, and a very modest dinner, and entirely disregard the fact that one or two, or even more, ice creams, sodas, or similar materials, are regularly taken. Five hundred calories, whether in the form of steak or in the form of ice cream, are the same so far as the supply of energy to the human organism is concerned. Indeed, 500 calories in the form of ice cream may have an actually greater effect upon obes-

ity than 500 calories in steak, since in the latter case we have the stimulating effect of the protein to assist in burning up the calories and the fact that a portion of the calories from protein is excreted unchanged. It is extremely difficult to discuss this question from the economic standpoint for, as has been repeatedly stated, one may not deal solely with calories and disregard flavor. Nevertheless, the calories obtained from these extra foods are, it is seen, considerable. Indeed, they may in a large number of cases become excessive, and a number of instances of obesity or beginning obesity may, without doubt, be directly ascribable to the more or less habitual use of these important foods. On the other hand, one must not lose sight of the fact that for a large number of people the convenience, the readiness for consumption, make many of these products extremely palatable, convenient to use, and, as we have seen, of real caloric value. While every effort should be made to oppose the substitution of the hastily gulped product of the soda-water fountain for a quiet lunch with relaxation, and all effort should be directed towards minimizing the American habit of rushing to a lunch counter and rushing away again, these products have their legitimate place in our economic as well as social life, and it is of great importance to recognize their calorific value.

It is, perhaps, not out of place here to sound a note of warning against too great a restriction of the products of the American soda-fountain. The great tendency at the present time of American legislative life is towards the prohibition of the manufacture and sale of alcoholic liquors, primarily, it is true, as a war measure. There is a popular belief which seems to be reasonably well substantiated, that the increased consumption of "soft" drinks, soda-water products, distinctly contributes towards lessening the demand for alcoholic liquors. Hence, in the efforts for conservation of sugar, due recognition must be taken of the important rôle played by these popular American drinks, and the curtailment of their manufacture and sale should be entered into only after a serious recognition of the important rôle they play.

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TRAINING SCHOOL FOR HOSPITAL APPRENTICES AT THE BOSTON CITY HOSPITAL.

By JOHN A. FOLEY, A.B., M.D., BOSTON,
Executive Assistant, Boston City Hospital.

THE Boston City Hospital, at the suggestion of Capt. John M. Edgar, Medical Inspector of the First Naval District, has established a training school for hospital apprentices. This, like all courses for men in the service, is of an intensive nature and is already bringing very successful results.

The district embraces all the New England States, and men from the entire area are centered at the hospital for training. After enlistment the men are sent to a naval station for a period of quarantine and drill; during this time they also receive their inoculations and vaccinations. When this period is over they are detailed to the Hospital for training as hospital aides or male nurses.

The instruction is given by members of the hospital staff under the direction of the Acting Superintendent, Edmund W. Wilson, M.D. This institution offers an ideal field for instruction of this sort, because of the immense variety of cases treated here. The hospital in all its departments contains ten hundred and sixty-one beds, six hundred and fifty of which are in the main hospital, where the men are receiving training. The Accident Department receives on an average of one hundred cases a day for first aid. Here instruction in all branches of first aid is furnished.

The Surgical Out-Patient Department treats over three hundred cases each morning, and here instruction is given in the after-treatment of wounds and operative cases. In the Genito-Urinary Out-Patient Department the men are instructed in the care and treatment of such cases, special care being given to the value of systematic and prolonged treatment.

On the operating floor there are from twenty to thirty major operations a day, including many emergencies. Here the men are instructed in the setting up of an operating room, the care of patients recovering from ether, and the preparation and sterilization of surgical dressings and instruments.

On the wards the men are instructed by the head nurses and their assistants in the nursing care, and among other things they are given special instruction in:

The care of rooms, sweeping and dusting.

Care of set bowls, wall stands and utensils.

The use of hot and cold applications, including the making of fomentations and poultices.

The care of rubber goods.

The making of surgical supplies, pads, sponges, etc.

The use of slings, binders and supports.

Most of the apprentices are graduate pharmacists and consequently are well acquainted with antiseptics, disinfectants and deodorants, and the preparation of solutions. They are instructed in the principles of heat radiation and its relation to body temperature. They are instructed in the taking and recording of pulses and temperatures. They are taught very carefully how to give alcohol sponge baths, bed baths, besides the regular care of the mouths and backs of patients.

In addition to the practical work, there are demonstrations in anatomy and physiology and pathology, and every student must witness at least one post-mortem examination.

There are special courses in x-ray, laboratory technic and dietetics.

To these courses men are sent who show special desire for this sort of instruction.

In the x-ray department, care is taken to instruct men as technicians, so that they may be of assistance to the doctors later. They are taught how to take plates, and how to develop them, how to give bismuth meals and enemata, and how to index and file plates which have been taken. In addition there are special lectures to the entire class in which the theory of x-ray is explained.

The class in laboratory technic is conducted in the clinical laboratory of the hospital. Here the men are taught the fundamental principles of urinalysis, blood counts, the staining of smears, and examination of stools and stomach contents. The men in this department are under the constant supervision of a nurse trained in this sort of work.

The hospital dietitian gives six afternoon demonstrations to a group of twelve men at a time. In this class the men are taught how to prepare dishes especially appetizing for the sick. The men are very quick to pick up this branch of the work, and enjoy it very much.

At present there are about thirty-two men on duty at the hospital and they are divided into two watches,—port and starboard. One watch comes on duty at 8 a.m., and goes immediately

to the stations assigned. The second watch comes on duty at 12 noon, when both watches go to lecture for an hour. At 1 p.m. the men go to dinner, which is furnished by the hospital. At 1.30 p.m. both watches return to duty until 4 p.m., when they go to drill or class in form-instruction, popularly termed "paper work," which is conducted by Pharmacist J. F. Durkin. At 5 p.m. the afternoon watch goes to supper, returning to duty at 5.30 p.m. and remaining on duty until 8 p.m.

The supervision of the men at the hospital is under the direction of one of the executive assistants, who places the men, arranges their lectures, and keeps their records.

Considerable interest has been aroused by the experiment, and numerous inquiries have been made regarding the work. The arrangement has worked out very satisfactorily both for the men and the hospital. The men learn rapidly and remember what they learn. They are considerable help to the hospital while on duty in that they furnish man power, which allows the hospital to split its very meager day force so as to supply the shortage at night.

Clinical Department.

IMPACTED STONES OF THE BLADDER AND URETHRA.

BY WALTER D. RIEBERBACH, M.D., WORCESTER, MASS.

[From the Genito-Urinary Service of the Worcester City Hospital.]

IN reporting this case of impacted stone involving the bladder and posterior urethra, I believe it brings out two points of interest: first, the enormous amount of stone found; second, cause and starting point of formation of the calculi.

Generally, urethral stones form in the kidneys, pass through the ureter, remain for a varying time in the bladder, and then pass into the urethra. However, in my case, I believe the original starting place was in the posterior urethra.

On April 19, 1918, N. B. was admitted to the genito-urinary service of the Worcester City Hospital. He was a man thirty-seven years of age, a cook by occupation, and was born in Russia. About twenty years ago he suffered from a urethral infection which was followed by gradual narrowing of the urinary stream. About four years from the date of his infection

he was taken suddenly with complete retention of urine. Instruments were tried to relieve his condition, but failed, and he was removed to the Wilkesbarre City Hospital in Pennsylvania, where an external urethrotomy with retrograde catheterization was performed. He recovered after a stormy convalescence, but never returned for dilation. For a year or so he had no apparent urinary symptoms. Soon after this he noticed his stream was again becoming narrower. He consulted several physicians but was informed that they were unable to pass the point of obstruction. During this time the stream became smaller, and finally down to a drop stream. About three years ago he was told by a physician that he had a stone and would have to be operated upon to get relief. He declined operation and for the past two years has been able to pass only a few drops of urine when the bladder became overdistended. Finally he began to suffer from such excruciating pain that he applied to the Worcester City Hospital for relief.

Examination. The patient, a male, in good physical condition, with an apparently strong, robust constitution and fairly well-nourished body. He had all signs and symptoms of retention, complained of severe pain over the suprapubic region and in the deep perineum, with a continual dribbling of urine. Between the umbilicus and symphysis pubis, in the middle line, was a large round puckering scar, showing the results of a former suprapubic cystotomy that evidently had gone septic. In the perineum, extending from the scrotum to within an inch of the anus, was another scar with a broad base, showing that healing had taken place following septic infection. As the patient lay on his back, a few drops of urine would dribble from the external meatus every few seconds, the patient having no control over his condition, simply tossing from side to side, and showing all signs of being in intense pain. He constantly placed his hand over the deep perineum as if to give it support, stating that in this region he was having terrible pressure pain. On palpation over the abdomen one could outline a large distended bladder. Inspection of genital organs showed them to be normal in appearance except for a long prepuce, reddened from being continually bathed in urine. The urethra could be easily felt and traced to the peno-scrotal angle. It was hard and fibrous. On deep pressure in the region of the membranous urethra a hard and somewhat round mass could be felt, giving rise to a sharp stabbing pain. Prostate felt moderately enlarged, hard, and was very sensitive. I could not reach or palpate the base of the bladder. A sound, No. 21 French, was introduced within the urethra and met with resistance at the bulbo-membranous junction. Slight pressure at this point caused a free bubbling of urine to follow the sound and to be expelled in jet-like sprays from the external

meatus. When this pressure was exerted at the place of stricture it would cause severe pain to the patient, especially in the rectum and posterior urethra.

Being unable to pass the point of obstruction in the urethra, a filiform was introduced, but failed to pass. The filiform was withdrawn and the tip heated and bent at right angles. It was then passed to the place of the stricture and rotated in a circular movement until it engaged into the small strictural opening for a distance of about one inch. The filiform was threaded on a Gouley sound and passed through the stricture, where it came suddenly to a stop in what could be felt as a somewhat soft, sandy mass, transmitting the click of stone along the metal Gouley. As slight pressure was exerted at this point, small jets of urine gushed forth from the external meatus, demonstrating that the impacted stones acted as a ball valve, thus preventing the patient from emptying his bladder. A diagnosis was made of impacted stone of the posterior urethra, and the patient was referred to the roentgenologist for an x-ray. Dr. Philip H. Cook, Roentgenologist, Worcester City Hospital, reported that the x-ray picture showed impacted stone in the posterior urethra (prostatic) and two large vesical calculi lying low on the base of the bladder.

Operation. A perineal incision was made in the middle line down to the membranous urethra. This was easily found, being well dilated, in which could be palpated a large oval stone. Urethra was opened and stone removed. Directly behind this stone another was found, slightly smaller than the first. As the finger was carried to the prostatic urethra another round-shaped stone could be felt obstructing the entrance to the bladder. This was grabbed with a large pair of Kelly forceps, but could not be dislodged and had to be broken in piecemeal until the entrance of the bladder was reached. It was found that this projection of stone was a fundus of a large calculus that lay on the floor of the bladder wall, fitting tightly around the internal urinary meatus. The stone was so large that it was impossible to deliver it, and it was crushed through the urethra and removed in small pieces. With the index finger within the urethra, another somewhat round calculus of considerable size could be felt imbedded on the lower anterior wall of the bladder. I could just touch it with the index finger, and on account of shortness of reach it was impossible to dislodge the stone with the finger. A metal sound was introduced through the open incision and followed along the anterior surface of the index finger, that acted as a guide. The curved portion of the sound was slipped over the upper surface of the stone, acting like a hook, and the calculus was dislodged and dropped to the base of the bladder. It was of such size that it could not be delivered through



FIG. 1.—X-ray picture taken by Dr. Philip H. Cook, showing stones in posterior urethra and bladder.

the internal urinary meatus, and was crushed and removed in small pieces. The bladder was then thoroughly irrigated and all small pieces of stone removed. The final step of an external urethrotomy was completed and a large-size catheter inlying from the external meatus to the bladder for drainage.

The patient made an uneventful recovery and was discharged from the hospital twenty days after operation. He was able to pass his urine through the urethra, and at the present time is in good condition.

I believe that the history, examination, and operative findings show that the starting point of stone formation was in the urethra, behind the seat of stricture. Here the urinary deposits collected, piled upon themselves, filling the posterior urethra to the neck of the bladder, and then, as one large stone, it piled up in mushroom shape and extended over the base of the bladder wall.

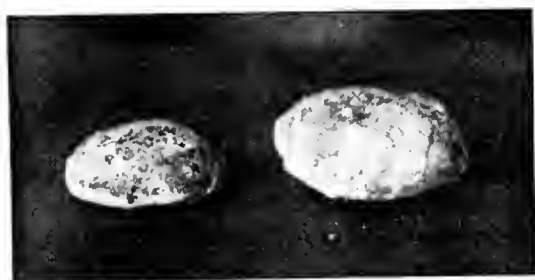


FIG. 2.—Two stones removed from membranous urethra.

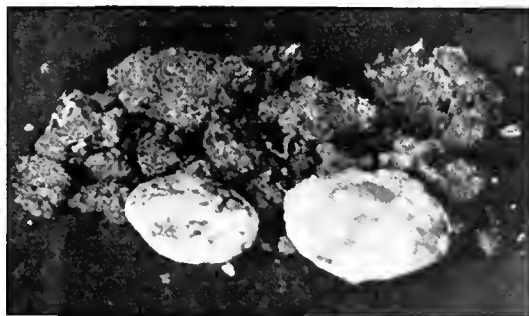


FIG. 3.—Entire mass of stone removed from urethra and bladder.

Fig. No. 1. X-ray plate taken by Dr. Philip H. Cook shows stones in posterior urethra and bladder. The small shadows were the two stones removed from the membranous urethra. The large shadow, that is pear-shaped, shows the stone with the fundus lying on the base of the bladder and its neck pushed down into the posterior urethra. The above round shadow was the large stone that was encysted in the lower anterior bladder wall.

Fig. No. 2 shows the two stones that were removed from the membranous urethra. The large calculus measures 4 centimeters in length and 3 centimeters in breadth; the smaller, 3 centimeters by 1½ centimeters.

Fig. No. 3 shows all stones removed from urethra and bladder, total weight being 4 ounces.

Society Report.

NEW ENGLAND PEDIATRIC SOCIETY.

THE fifty-third meeting of the New England Pediatric Society was held at the Boston Medical Library on April 12, 1918, at 8.15 p.m.

Dr. Charles H. Dunn, of Boston, in chair.

The following papers were read:

1. An Unusual Food-Borne (probably milk) Epidemic of Scarlet Fever, Edwin H. Place, M.D., Boston; H. Linenthal, M.D., Boston; A. B. Lyon, M.D., Boston; M. C. Cheney, M.D., Boston.

2. An Analysis of the Wassermann Reactions Done at the Boston Lying-in Hospital for the Years 1916-1917, John B. Swift, M.D., Boston.

3. Auto-serum Treatment of Chorea, F. H. Sylvester, M.D., Boston.

Discussion as follows:

DR. SMITH (Dr. Swift's paper): I am glad that Dr. Swift has brought up this matter for

discussion. It seems to me that it is one of the things that we have to consider very seriously at the present time. As Dr. Swift says, it is a part of the general movement for child conservation which is being introduced everywhere in this country.

In regard to this particular subject, he has indicated a satisfactory solution of the problem, namely, closer coöperation between clinics and other agencies doing the same kind of work. No hospital should give up this work because the machinery has not been perfected. The machinery can be perfected, and I think the pregnancy clinic can contribute much to the general child conservation movement. I hope Dr. Swift's suggestions will be put into operation.

DR. SWIFT (in closing): I might say in connection with Dr. Smith's statement that it is exactly what I hope is going to be the outcome of this paper. It is what I want to see done now.

DR. GOODMAN (Dr. Sylvester's paper): I have followed with great interest Dr. Sylvester's excellent paper on the Auto Serum Treatment of Chorea, and must agree with him that the results he obtained were far from satisfactory. It is quite natural that Dr. Morse's deductions should be so unfavorable, and that he should feel justified in condemning the method, considering the report of cases just read. If this meeting had been held a few years ago, when I was the only one using this method, there might have been some doubt as to the accuracy of the favorable reports that I have published. Fortunately, I have received encouraging reports from many sources, both in this country and in Canada, from other men who have been successful in the use of the auto-serum treatment of chorea.

In the early stages of the technic I, too, had unfavorable results; but by the development of improved methods I have eliminated all the reactions which you have just heard Dr. Sylvester report. Our patients do not have any rise of temperature; they do not vomit, they have no headache and suffer no discomfort whatsoever, except from the introduction and withdrawal of the needle. Any rise in temperature is positively due to faulty technic,—either there is an artefact in the circulating serum or asepsis has not been properly observed. Vomiting and headache are due to the introduction of too much serum, causing pressure symptoms such

as one sees in regular inflammatory conditions of the cerebrospinal system. How these can be eliminated I will explain later. My first case taught me that drugs circulating in the blood plasma have a very potent effect when injected into the cerebrospinal canal. In the first case I had exactly the same results that Dr. Sylvester describes in many of his cases, but since I have insisted on allowing all patients to lie in bed four or five days without any medication, I have not had any such results.

Another important point in the technic consists in obtaining absolutely clear serum containing no red blood corpuscles. Tinged serum will cause a rise in temperature. It is necessary, therefore, at times rapidly to centrifugalize the blood for quite a long time before the serum becomes entirely clear. In the early days I diluted the serum with salt solution in order to have the specific gravity as near that of the spinal fluid withdrawn as possible, but I have entirely discontinued this method and use only the pure serum. In the beginning we also inactivated the serum but found that we had better results with the serum that was not treated in this manner. I have also tried the simple withdrawing of the spinal fluid as was suggested by Passini, but obtained no favorable results with this treatment.

Our technic is, briefly, as follows: We collect from any vein about 50 cc. of blood in a sterilized tube, place it in the centrifuge and rapidly centrifuge it until the supernatant serum is absolutely free from any red corpuscles; then it has the usual straw, or slightly greenish color. We then place it in an ice box and keep it there for a few hours. The patient is prepared for a spinal puncture in the usual manner, the aspirating needle is inserted into the spinal canal, and we usually withdraw from 2 to 3 cc. more of spinal fluid than the amount of serum we intend to inject. In other words, if we inject 18 cc. of serum, we withdraw 20 to 22 cc. of spinal fluid. We use the syringe method in preference to the gravity method because with the syringe method we can estimate the necessary amount of serum to be injected without causing any pressure symptoms. After making a number of such injections, one develops a distinct sense of feeling that guides one in determining the exact amount of serum to be injected. No harm, however, can result from injecting too much serum. Headache or vomiting, or both, may result, but these disappear

within a very few hours. It is urgent that after a spinal injection the patient be kept absolutely flat on his back in bed for at least one hour. We have a nurse stay with each case during this period.

We have made repeated examinations of the blood and spinal fluid in all our cases of chorea and have never been able to demonstrate any pathologic change. We have made hundreds of lumbar punctures in a study of spinal fluid in various diseases, and have never had any untoward results at any time. The auto-serum injection is just as harmless when properly done as a simple spinal puncture alone.

I am unable to state why Dr. Sylvester has had such unfortunate results, but I feel that they must be due to some error in technique at one stage or the other. All I can say is that we have eliminated all these unpleasant symptoms. We get good results in between 70% and 80% of our cases, and by this I mean that they are either cured or markedly improved. By a cure I mean all cessation of choreiform movements within the first few days. Only recently we had a case of so-called "electric" chorea that had been under treatment for nearly four months and was gradually getting worse; within twenty-four hours after an auto-serum injection the child was absolutely quiet. I feel entirely justified in recommending the use of the auto serum treatment, because if properly employed no reaction will follow. It is a marked improvement over all other forms of treatment recommended, and should one fail to obtain a satisfactory reaction, no harm can result. As I have stated in the beginning, I am supported by many others who have used this treatment with good results.

DR. GROVER (Dr. Sylvester's paper): At the time I was in New York last fall, I visited Dr. Goodman's Hospital. I saw four cases there at that time. Two of them had had the treatment for two or three days previous to my visit and the other two were about to receive it. The four I saw were not severe cases of chorea. Most of those treated at the Children's Hospital were of the more severe type. I remember particularly that we sent only the worst ones in from the Out-Patient Department. From what I learned from the interne at Dr. Goodman's Hospital, the same technique was used, except that they might have been more particular in having their serum corpuscle-free.

DR. MORSE (Dr. Sylvester's paper): I, of

course, saw a good many of these cases while they were receiving treatment at the Hospital. All the cures happened while I was on my vacation. After I got back, there were no more cures.

My impression, as I watched these cases, was that the treatment did not do them any good. The reactions were in many cases very severe. My conclusions are the same as Dr. Sylvester's, *i.e.*, I do not feel that any one ought to use this method of treatment except in a case where it seems probable that the child is going to die. Then it is justifiable to take a desperate chance. I do not think that there was anything wrong with our technique, and it was done very carefully and by competent men.

DR. SYLVESTER (in closing): So far as I can see, our technique is the same as that of Dr. Goodman. Possibly he has made some changes in the method of treatment the last year. I remember we had two or three very severe cases; the others I do not remember so well.

Book Reviews.

Therapeutic Immunization. By W. M. CROFTON, M.D. Philadelphia: P. Blakiston's Son & Co., 1918.

"Therapeutic Immunization" presents a new theory of vaccine therapy, which is being practised by the author with satisfactory results. The three classes of microbes—saprophytes, symbiotics, and parasites—and their effects upon the human tissues are discussed. The two classes of toxins, exotoxins and endotoxins, and antitoxins are described. The way in which the animal organism deals with the microbial cells is considered in a chapter dealing with bacteriolysis and phagocytosis. Two other substances occurring in serum of infected or immunized animals—agglutinins and precipitins—and their intravital reactions are considered. The book discusses, besides these immunity mechanisms, prevention and therapeutic treatment. The author explains his theory of dealing with the alimentary canal, the respiratory, urino-genital, vascular, lymphatic, and nervous systems, as well as the skin, bones, joints, and wounds, from the standpoints of pathology, bacteriology, immunity, prophylaxis, and treatment. The infections produced by streptothrices are briefly considered.

The Modern Milk Problem. By J. SCOTT MAC-NUTT. New York: The MacMillan Co., 1917.

This book surveys the milk problem in the United States. It supplies practical information as to the control, the sanitary supervision, and the economic factors of the milk supply. It explains why there is a milk problem: milk is one of the most valuable and most extensively used of all foods: it is the food most dangerous to health. Many difficulties arise from the separation of the producer and the consumer, and from the complexities which urban development necessitate. The book traces the development of sanitary improvement and discusses such factors as certified milk, the score-card method of inspection, the North system, infant welfare stations, laboratory tests and standards, pasteurization, clarification, and other processes. The importance of publicity of ratings, contests, conferences, and exhibitions, is mentioned, and grading systems are described. The author explains that the crux of the economic question lies in the fact that everything used in the production of milk has increased in cost, while the price of milk has failed to rise proportionately. Grading and laboratory tests and the advantages of centralization are discussed. Health authorities, legislation, agricultural authorities, the dairy farmer, the dealer, and the consumer, must all cooperate in solving the milk problem.

Medical Research and Human Welfare. By W. W. KEEN, M.D., LL.D. Boston and New York: Houghton Mifflin Co., 1917.

This volume is a record of the author's experiences and observations during a professional life of fifty-seven years. It discusses the factors which have been of invaluable assistance in promoting human welfare: research, anesthesia, new instruments, and bacteriology. The life and achievements of Pasteur and Lister are commented upon. In the author's experience, medical research has practically conquered the following diseases: anthrax, puerperal fever, hydrophobia, tetanus, smallpox, cholera, bubonic plague, yellow fever, malaria, the hookworm, typhoid fever, diphtheria, and others. Many cases are described. Other experiments are recorded in the research on diseases of plants and animals. This book is an amazing record of the many ways in which human welfare has been promoted and medical science revolutionized by the research and experiments of the past century.

Good Health. By ALVAH H. DORR, M.D. New York and London: D. Appleton and Co. 1917.

This volume is an attempt to tell the reader how to acquire good health and how to keep it. It includes a description of the essential points in the construction of the body, and the function of its various parts. It discusses public health problems, the maintenance of individual physical well-being, the means by which infectious diseases are transmitted, and how they may be prevented. It emphasizes the importance of pure air, good water, nourishing food, and other matters connected with the subject of hygiene. The author's aim is to substitute for the passive acquiescence of the general public in following the teaching of sanitarians, an intelligent appreciation of the fundamental principles which animate them, and a definite sense of responsibility in maintaining bodily health for both individual and social ends.

Diabetic Manual. By ELLIOT P. JOSLIN, M.D. Philadelphia and New York: Lea and Febiger. 1918.

This "Diabetic Manual" presents the modern conception of diabetes and its treatment. The book is arranged in four divisions. The first part gives a brief survey of the fundamental conceptions of the subject. Part two gives a more detailed and technical account of diabetic treatment. The third division contains diet tables and recipes which have been used by the author with success. Part four describes laboratory tests useful in modern diabetic treatment for the estimation of sugar and acid bodies in the urine, of the sugar in the blood, and of carbon dioxide in the alveolar air.

In discussing the treatment of diseases, methods are suggested to decrease the work which the organ is called upon to do, and at the same time, to stimulate the organ to utilize its power more effectively. Diseases of the heart, kidneys, vessels, respiration, the gastrointestinal tract, general metabolism, other chronic diseases, and specific infectious diseases are discussed, showing that the object of therapeutics is not to restore anatomical integrity, but to improve functional efficiency.

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BOSTON'S NEW HEALTH COMMISSIONER.

THE JOURNAL is glad to extend the cordial greetings of the Boston profession to Dr. William C. Woodward, the new health commissioner of this city, whose service here began on August 1.

Dr. Woodward possesses training qualifications which fit him particularly well for municipal health administration, for he is both a physician and a lawyer. The latter training enables him to avoid many of the embarrassments of the ordinary official unacquainted with the legal aspects of the health problem.

Besides administering his office in Washington for 24 years in a way which has brought strong commendation from succeeding boards of commissioners in the District of Columbia, Dr. Woodward has lectured on state medicine

and medical jurisprudence at Georgetown, George Washington and Howard Universities in Washington. At a recent interview he is reported to have said:

"A great many of our best physicians and sanitarians have been claimed by the government service, and in many cities, in consequence, there have been serious obstructions placed in the way of efficient health administration. We have encountered this difficulty here in Washington, where I would venture to say our work has been reduced to a basis of 70 to 80% of its pre-war efficiency on account of the disruption of our health organization.

The public health here at home must, nevertheless, be guarded and even improved during the war, and the many new problems, such as those occasioned by the entrance of great numbers of women into industry, must be solved. State and city health officials are now in conference with the Medical Corps of the army, navy and health service in an effort to work out plans which will assure adequate health protection to the cities and towns of the country during the war. I feel sure that plans adequate to meet the situation will be evolved."

As to the most important factor in efficient health administration, Dr. Woodward declared that he considered education along the lines of preventive medicine of great value.

Dr. Woodward was born in Washington. He is a graduate of Georgetown University, a member of the District of Columbia bar and a member of the District Medical Society. He has served as president of the American Public Health Association and in a similar capacity in the conference of state and provincial boards of health of North America and the American Association for the Study and Prevention of Infant Mortality. He is a director of the American Society for the Control of Cancer and an honorary member of the American Veterinary Association and of the International Association of Dairy and Milk Inspectors, besides being a Fellow of the American Medical Association. He has been a contributor both to leading medical and legal journals and has often appeared as a lecturer on various phases of public health administration.

It is no detraction from Dr. Woodward's predecessors to expect important progress under his administration. The good wishes and cordial coöperation of the medical profession will be freely given to whatever measures he may undertake in benefit and advancement of the public health.

THE ORTHOPEDIC CENTERS OF GREAT BRITAIN.

A MOST interesting article appeared recently in the *American Journal of Orthopedic Surgery* by Robert B. Osgood, M.D., Major, M.O.R.C., U. S. Army, concerning the Orthopedic Centers of Great Britain. The organization of the Orthopedic Centers groups itself about the Inspector of Military Orthopedics, Colonel Sir Robert Jones, and the Assistant Inspector, Major Paterson, Professor of Anatomy in Liverpool University. Orthopedic Centers usually consist of a certain number of beds set apart from a general military hospital. At present there are Orthopedic Centers in Aberdeen, in Edinburgh, Glasgow, Leeds, Bristol, Liverpool, Cardiff, Oxford, Belfast, Dublin, and in London, and new centers are being started in Reading, Newcastle, Southampton, Birmingham, and Manchester, and still the cry for more orthopedic beds goes up.

In Aberdeen, the Center is situated at the Old Mill Military Hospital, which is about four miles outside of the white granite Scotch city, well equipped with gymnasium curative workshops, hydrotherapy and electro-therapy, excellent operating rooms, and photographic studio. The most interesting occupation in the workshops is deep-sea fish nets. These articles are of much use, and the exercise for stiff fingers in making the mesh, and for stiff arms and legs as they sway back on the stout cord knots, is admirable.

The Center at Edinburgh is at Bangour, Lothian, fifteen miles out of the most romantic city in the world; a fine group of buildings on high ground with lovely views of the Highlands, in most attractive surroundings. The Red Cross bus runs up and down every day, and the men are quartered at Houston House, a mile down the road. A walk morning and night keeps them in fine trim.

Leeds is now the largest Orthopedic Center in Great Britain. A splendid commanding officer, Colonel Littlewood, the very distinguished surgeon, is in charge of a great hospital of 1800 beds, consisting of many permanent brick buildings, formerly a large school, and numerous hutments of most modern construction and remarkably well and originally planned by Colonel Littlewood. These hutment hospitals cry out against the extravagance of most of our modern hospital construction. Every factor for

efficiency is considered in them,—light, heat, fresh air, cleanliness and comfort. The Children's Hospital in Boston was the first to realize that this method of construction is not only cheapest in the short run, but in the long run as well the cost per bed is enormously decreased.

The great Center at Alder Hey, near Liverpool, is the oldest, and is with Shepherd's Bush in London, the most highly developed Orthopedic Center. Large Curative Workshops, a finely equipped gymnasium, a large hydrotherapeutic plant nearly complete, an efficient electrical plant, fifty masseuses at work daily, and all the paraphernalia of a modern hospital are at the disposal of the men.

The Military Orthopedic Hospital at Shepherd's Bush is perhaps better known than any of the other Orthopedic Centers. A great municipal workhouse plant with fine buildings has been taken over, and under the administrative genius of Major Hill and with the great interest and financial help of King Manuel of Portugal, acting for the British Red Cross, has expanded to huge proportions.

The institution contains a unique hydrotherapeutic plant, comprising silent pools and whirlpool baths and sprays and douches and contrast showers; an enormous electrotherapeutic department under Bristow carries out his principles of graduated contraction for weak muscles. Curative and productive workshops on a scale far larger than elsewhere serve to maintain remarkable discipline and furnish splints and shoes and build new buildings. The plaster models of deformities of Shepherd's Bush and Alder Hey rival the best work of Caproni. A patients' orchestra and band is in constant demand in the neighborhood of London, and the whole place is a beehive of industry.

Of the first 1300 cases, representing the backwash of serious lesions and bad surgery—the scrapheap of the war—1000 returned to army service. Could anyone ask for a greater triumph of orthopedic surgery? This is true not only of the work of Shepherd's Bush. Recent statistics from other Centers which have been dealing also with this class of supposedly hopeless cases have returned on an average of 75%.

A NEW DISINFECTANT TESTING MACHINE.

AN article in the Public Health Reports for April 12 describes a new disinfectant testing machine. In performing laboratory tests to determine the bactericidal power of disinfectants, some of the organisms, living or dead, upon which the disinfecting solutions have been allowed to act, are transferred at stated intervals from the disinfectant solutions to test tubes containing nutrient broth. The bacteria are thus placed in favorable conditions for multiplication, if they have not been killed by the disinfectant solution. As growth will appear in those tubes into which live organisms have been introduced, the results of the tests may be observed, and from these observations an opinion formed as to the efficiency of the disinfectant under the conditions of the test. In testing a disinfectant a number of dilutions are used, thus necessitating a number of transfers for each time interval.

It is obvious that in performing these transfers by hand only one transfer can be made at a time; thus the conditions throughout the experiment may constantly be subjected to certain variations in those important factors of time and temperature upon which the uniformity of the tests depends. Moreover, as these transfers must be made in sequence, a single error in technic, disturbing the sequence of manipulation, may ruin the entire experiment. The precise inoculation of a considerable number of tubes at intervals of 15 seconds, as is sometimes required, and in a certain sequence, using different suspensions of bacteria, is a tedious task, even if correctly done by an expert in the work. The serial inoculation may well be dispensed with if a method equally satisfactory, as regards the accuracy of the results, can be devised.

In performing disinfectant tests, the use of a machine has a certain obvious advantage over a technic depending wholly upon manual dexterity, in so far as the precision of a mechanical device is substituted for the variations in accuracy of the hand movements of one or more laboratory workers. A machine has been devised by the use of which all the transfers due to be made at any particular time interval are made at the same time and in the same way, thus securing identical conditions for each dilution of the disinfectant or disinfectants

used. Furthermore, the machine makes 15 transfers at once, thus doing away with the strain of inoculating a large number of tubes singly in a certain sequence.

It has been recognized that in using a machine greater difficulty as regards the exclusion of air contamination is likely to be encountered; however, this machine has been so designed as to overcome that disadvantage.

The machine consists of the following: a table, 31 inches high, 36 inches wide, and 30 inches from front to back, supports these essential parts of the apparatus: a water bath, a large test tube rack, a traveling carriage, and a flaming device.

Actual comparison of the two methods has shown that the use of the machine greatly simplifies the practice of disinfectant testing.



THE ROCKEFELLER FOUNDATION.

A REVIEW of the Rockefeller Foundation, by George E. Vincent, has recently been published. It describes the resources and policy, the war work, public health activities, and medical education projects of the Foundation in 1917. The society has coöperated with the Red Cross and Camp Commissions; it has carried on medical research with war surgery and sera; and it has assisted in the treatment of mental diseases in war and peace by coöperating with the National Committee for Mental Hygiene.

The Rockefeller Foundation has given valuable aid to the cause of public health by caring for the victims of infantile paralysis in New York, by fighting tuberculosis in France, and by supporting a School of Hygiene and Public Health at Johns Hopkins University. The International Health Board of the Foundation has extended its service over twenty-five foreign countries and twelve American States. It has rendered most valuable aid in controlling the hookworm in many countries, and campaigns are being made against malaria and yellow fever. This International Health Board is a unique agency for coöperative research; it has brought many governments to a realization of the value of its work and the need of assuming responsibilities and enacting sanitary laws. In the Philippines, an experiment is being made with a floating dispensary, which will have a bearing upon the international problem of dealing with backward people.

In furtherance of medical education, the Rockefeller Foundation is assisting China in establishing the Union Medical College in Peking, and by appropriating funds toward strengthening the curricula and increasing the staffs in three missionary colleges in Shanghai. Subsidies to missionary hospitals have been granted, and fellowships and scholarships for study in the United States and Europe. Furthermore, research and medical education in the United States have been fostered; one million dollars have been promised by the Foundation for creating a modern medical center at the University of Chicago. The Rockefeller Foundation is an international force, fostering world-wide organization in the interests of scientific knowledge applied to human welfare.

The Secretary's Report contains the organization and membership of the Foundation and of the Departmental Boards. In the Treasurer's Report is recorded a summary of expenditures for all work in 1917, and of the funds and property of the Foundation.

PLAN TO DRAFT DOCTORS.

It is proposed that the Government should assume control of the entire medical profession in the United States in order to obtain sufficient doctors for the fast-growing Army, and at the same time to distribute those remaining to the localities or services where they are most needed for civilian work.

This mobilization is to be accomplished either by enrolling all doctors in a volunteer service corps under pledge to accept whatever service, military or civilian, is assigned them by the governing body of the corps, or, if the voluntary plan is not successful, by legislation for drafting them into government service.

The conscription of medical men is no reflection on the patriotic response of the profession, but means a more complete availability and a fairer and more selective distribution of services. Doctors assigned to civilian posts would receive public recognition of their patriotic service and those appointed to foreign service would willingly undertake their duties.

Organization plans of the Volunteer Medical Service already have been made and enrollment started in a few States under authority of the Council of National Defence. Instead of

enrolling in this corps only those physicians not suitable for military service, either because of age, physical infirmity, dependency, or institutional or public need, as planned at present, the Government expected shortly to throw membership open to all doctors and to bind each with a pledge 'during the present emergency to accept service, military or civilian, wherever, whenever, and for whatever duty he may be called by the Central Governing Board.'

Under this project, the Army and Navy would take those physicians and surgeons best fitted for active duty and who can be spared from civilian requirements. At the same time the Government would maintain a continuous survey of the country and assign doctors to those communities in which there were too few. The practical operation, officials believe, would cause little of this relocation, however, since physicians who are needed in certain communities, hospitals, schools, or other essential civilian service, would not be commissioned in the Army.

Of 143,000 doctors in the United States, it is estimated between 80,000 and 95,000 are in active practice, and 23,000, or about one-fourth are in the Army or Navy. Nearly 50,000 will be required eventually for the Army. The active practitioners remaining, together with those who have retired, but who can be persuaded to resume active work, must carry on the health maintenance work in this country.

Surgeon-Generals Gorgas of the Army, Braisted of the Navy, and Blue of the Public Health Service, are considering a plan for commissioning all teachers in medical schools and assigning them to their present duties. This would constitute a means of preventing further disruption of medical teaching staffs, and at the same time recognizing the public service of those men.

MEDICAL NOTES.

ASIATIC CHOLERA SPREADING.—Many cases of Asiatic cholera have been reported recently. Eight persons are now suffering from the disease in Stockholm, and it is spreading to Finland. In Moscow, there have been registered within twenty-four hours, 224 known cholera cases, seventy-eight suspected cholera cases and twenty-six cases of stomach disease. 120 cases have occurred in Petrograd, and in Saratov, several instances of cholera have been reported.

WAR NOTES.

DR. BARROWS RECEIVES COMMISSION.—Dr. H. C. Barrows of Boothbay Harbor, Maine, has

been appointed first lieutenant in the Medical Reserve Corps.

Dr. Barrows is a graduate of Bowdoin College, class of 1903, and of the medical school in 1904. He will probably go to Fort Oglethorpe, Ga., for training.

DR. ETHEL E. GRANT, DENTIST, SAILS TO FRANCE.—Dr. Ethel E. Grant, a Reading dentist, has sailed for France with a Red Cross unit.

Dr. Grant is a graduate of Tufts Dental College, member of the New England Women's Dental Association, the National and the Massachusetts State Dental Associations and of Tufts Dental Alumni.

OUR PATRIOTIC DENTISTS.—The Dental Department has all the assistance it can possibly require for some time to come, as there are plenty of dentists now in the service to take care of a force of 5,000,000.

Examinations for dental officers have been closed and no further additions will be made to the corps for at least six months. When the United States declared a state of war with Germany its army had fifty-eight dentists. Today there are 5810. Commissions were offered to 5467 dentists in various parts of the country and 95 per cent. accepted.

The dentists of the country are to be honored for their practical patriotism, many of them abandoning highly profitable practices to serve their country. Less well known is the contribution made by members of the Preparedness League of American Dentists, numbering some 15,000, who are pledged to render at least an hour's gratuitous service a day in fitting selected soldiers for duty. Over 300,000 free operations have been performed by the organization's members within the past year. Pittsburgh has many dentists who are accustomed to give up their Saturday afternoons frequently to this patriotic work. It is only within the last few years that the relation between bad teeth and not merely sickness but deficient physical stamina has been established. Some of our new soldiers never knew what real health was until they were forced to have their teeth put in good condition. There should be widespread recognition of the patriotic service rendered by American dentists, both at home and abroad.

JEWISH MEDICAL UNIT ARRIVES IN EUROPE.—The Jewish American Medical Unit has arrived safely at a European port. The unit is comprised of 42 physicians, nurses, sanitarians and administrators, equipped by the Hadassah, the women's Zionist organization, for the purpose of doing relief work in the Holy Land.

There are three Boston men in the Unit. The unit is now en route for Palestine, where it will establish a public health service.

The plans of the medical unit call for the establishment of a 100-bed hospital, the opening of a branch at Jaffa and for the covering of the entire region with ambulatory dispensaries, clinics and maternity relief stations. Included in the unit are Adolph Hubbard, a local attorney, administrator; Dr. Isaac Aleazar, Boston, formerly of the Charitable Eye and Ear Department and the Ophthalmic Department of the Massachusetts General Hospital, and also visiting surgeon at the Carney Hospital, South Boston; Samuel M. Schmidt, Boston, sanitarian and formerly of the Board of Labor Industries, and Dr. Joseph Sniffin of Boston, obstetrician.

COLONEL LOUIS BRECKEMIN SUCCEEDS COLONEL P. F. STRAUB.—Colonel Louis Breckemin, Sr., U. S. A., will succeed as Department Surgeon at the Northeastern Department Colonel Paul F. Straub, who has been detailed. Col. Breckemin comes to Boston from U. S. Army General Hospital No. 11, located at Cape May, N. J. After graduating from the University of Pennsylvania about forty years ago, he joined the Army, from which he retired in May, 1916. In January he returned to active service and was stationed at Cape May for nearly six months.

First Lieutenant George C. Sanderson, U. S. R., has been assigned to the Northeastern Department medical staff as a dentist.

PREVENTION WORK AGAINST LUNG DISEASES.—It has been found advisable to establish detention camps in order to protect incoming recruits from measles and other communicable diseases resulting in pneumonia and meningitis.

The practice of the navy at the Great Lakes, the Pelham and other training camps and the result of the creation of such camps at Fuston, whose divisional commander took the responsibility of ordering and maintaining them,

prove beyond question that they are a protection to the enlisted men against the much dreaded respiratory diseases, and that the recommendation of the surgeon-general of the army that they be established is worthy of adoption. It appears, however, that, despite his recommendations, the war department has failed to give the matter favorable consideration.

GIFT FOR SCOTTISH WOMEN'S HOSPITALS.—The American Red Cross has given another \$150,000 to the Scottish women's hospitals in recognition of their efficient work at the front in France during the past two months. The gift will be payable in three instalments, beginning Aug. 1.

INDIAN SCHOOL ABANDONED.—The Carlisle Indian School in Carlisle, Pa., has been abandoned and turned over to the War Department for hospital purposes and the rehabilitation and reëducation of sick and wounded soldiers.

The school was originally an Army barracks, but was assigned to the Interior Department until needed.

Cato Sells, Commissioner of Indian Affairs, said this meant that the famous school would cease to exist and its students would be transferred to other Indian schools.

HOSPITAL HUTS REACH LONDON.—The first shipment of the 150 hut hospitals which the American Red Cross has built in the United States for use in the 80 small American camps throughout Great Britain has arrived in London.

The huts could not be constructed in England, on account of the shortage of lumber, without crippling important war work, so the American Red Cross had them shipped in knockdown form, thus getting them into a smaller cargo space than would have been required even for the lumber to build them.

APPOINTMENTS FOR MEDICAL MEN.—The following appointments in the Medical Reserve Corps have been announced:

Major, Daniel Fiske Jones, Boston.

Captains, Frederick Seales Towle, Portsmouth, N. H.; S. H. Blodgett, Boston; F. H. Allen, Holyoke.

First Lieutenants, G. A. Buckley, Brockton; S. N. Vose, Boston; D. H. Boland, Worcester;

T. H. Kenney, Northampton; G. L. Chaffin, Boston; S. P. Hilde, New Bedford; N. N. Levins, Boston; E. J. Meyer, Somerville; F. L. Gibson, Holyoke; E. F. Hull, West Stockbridge; H. L. Sullivan, Roxbury; Harvey Clifford Bundy, Lakeview, Me.; George Braden Hunter, West Brattleboro, Vt.; John Marshall Page, Littleton, N. H.; George Alfred Schneider, Island Falls, Me.

RECONSTRUCTION UNIT.—Another unit of reconstruction aides has been selected for service in France. All members of the unit are women and will be assigned to base and general hospitals to aid in physical and mental reconstruction of disabled soldiers.

ROYAL PARK FOR RED CROSS HOSPITAL.—The proposal to establish an American Red Cross hospital in the grounds of Windsor Castle has been discarded, owing to the difficulties that would be encountered in draining the soil. The high ground in Richmond Park, overlooking the Thames, has been selected for the purpose. The new site is close to the South African hut hospital, where there are already nearly 100 Americans.

WAR RELIEF FUNDS.—On July 22, the totals of the principal New England War Relief funds reached the following amounts:

Belgian fund	\$685,041.46
French Orphanage fund	383,969.18
French Wounded fund	380,658.23
Armenian-Syrian fund	309,722.27
Italian fund	188,661.69
Permanent Blind fund	143,288.98

HEALTH CONDITIONS GOOD IN THE NAVY.—The Navy reports its health conditions as remarkably good and the admission rates to the hospitals lower than it had anticipated. For several weeks continuously the sick list for the entire Navy from all injuries and diseases has been kept well below the peace time average. The first six months of the present year, which include the bad months from a health standpoint, showed a general admission rate for the principal shore stations, where ordinarily there is more sickness than among a corresponding number of seasoned men afloat, less than the average rate for apprentice seamen and other

unseasoned men for corresponding periods in peace time years preceding the outbreak of the war. The death rate for all diseases has averaged between 1.4 and 2.0 per thousand per annum during recent weeks.

These results are due to the fact that the strict discipline of the Navy, especially in regard to health regulations, has been maintained, even though the personnel has been expanded five times its original size. Close coöperation of the Bureau of Navigation and other bureaus concerned in the maintenance of health conditions have played an important part in the prevention of sickness.

APPOINTMENTS FOR TWO AMERICAN SURGEONS.—Dr. Fred Bates Lund has just been commissioned lieutenant-colonel in the Medical Reserve Corps.

Dr. Lund was born in Concord, N. H., in 1865. He prepared for college at Andover and entered Harvard in 1884. He graduated from Harvard in 1888, one of the first scholars of his class and was chosen a member of the Phi Beta Kappa. He received the degree of A.M. in 1892.

In the fall of 1888 he entered the Harvard Medical School and while still a student he was appointed a surgical house officer at the Massachusetts General Hospital. He served in that capacity from 1890 to 1893.

On leaving the hospital he was appointed an assistant instructor in surgery at the Harvard Medical School and later was chosen assistant visiting surgeon to out-patients at the Boston City Hospital.

During the past few years he has been a senior visiting surgeon at the City Hospital. He is a consulting surgeon at Quincy City Hospital and the Josiah Hale Hospital. He has been assistant editor of the *BOSTON MEDICAL AND SURGICAL JOURNAL* and author of various surgical papers.

Before the United States entered the war, Dr. Lund was surgeon-in-chief of one of the units which went overseas to assist the British Expeditionary Forces.

Dr. Daniel Fiske Jones has recently received a major's commission in the Medical Reserve Corps.

Dr. Jones was born in Minneapolis, Minn., June 2, 1868. He graduated from Harvard University in 1892 and Harvard Medical School

in 1896. On receiving his degree from the Medical School he was appointed a surgical house officer at the Massachusetts General Hospital.

In 1903 he was appointed a visiting surgeon to the Out-Patient Department of the Massachusetts General Hospital, and in 1912 was promoted to assistant visiting surgeon to the main hospital. He is also a consulting surgeon to several New England hospitals.

Dr. Jones was surgeon-in-chief of the Harvard surgical unit which went abroad in 1916 for service with the 22d General Hospital of the British forces in France. He remained there six months.

He is a member of the American College of Surgeons, American Medical Association, Society of Clinical Surgery, Interurban Surgical Society, Massachusetts Medical Society, and other social and professional organizations.

THE PREVENTION OF DISEASE IN THE WAR.—A pamphlet by Louis Livingston Seaman, M.D., called "The Prevention of Disease in the War," is of utmost importance at this crisis. He righteously pleads for more power for the Medical Department of the Army, and reviews the results of the Spanish-American war in Cuba and Porto Rico and in the Philippines as a warning to Congress. Dr. Seaman reminds us that in the Spanish War there was about one casualty to thirteen deaths from preventable diseases. He believes that a similar tragedy can be averted in this war by giving the medical officer authority to enforce sanitation, and supervise control over the rations of the troops.

The *JOURNAL* has reviewed recently the author's book, "Shall Disease Triumph in Our Army?", emphasizing the same need of reform in the Medical Department.

REHABILITATION OF TUBERCULOUS SOLDIERS.—The June Bulletin of the National Tuberculosis Association contains the following article concerning the rehabilitation of disabled soldiers and sailors.

"A pressing problem of the war is the vocational rehabilitation of disabled soldiers and sailors. Legislation is pending and there are the usual inevitable differences of opinion as to departmental control, in which the War Department, the Bureau of War Risk Insurance, and the Federal Board of Vocational Educa-

tion are involved. A Committee on Federal Legislation of the National Tuberculosis Association is giving continuous and intensive study to the whole situation, but with particular attention to the needs of the tuberculous. It is the policy of the Surgeon-General that no disabled soldier shall be discharged from the Army until he shall have been cured, or as nearly cured as his disability will permit. By "cured" is meant functional restoration.

It is of special importance that men suffering from tuberculosis shall have prompt and continuous care, which, in the vast majority of cases, would not be possible if they were permitted to leave the service entirely at their own discretion. The will to get well is not very strong in the average man. Military supervision will be of vast benefit in bringing about an arrest of the disease, as was pointed out more fully in the Bulletin for March. The Surgeon-General's office appreciates that difficulties will be met in holding tuberculous soldiers indefinitely. It is possible that a time limit of three months will be placed upon compulsory treatment in the army sanatorium, and that thereafter the soldier may be discharged upon his own request.

It is considered desirable to have a tuberculosis sanatorium connected with the special hospitals or reconstruction units, of which there is to be one in each of the sixteen military divisions of the country. The government sanatoria for tuberculosis, to be located at Denver, Colo.; Azalea, N. C.; and Otisville, N. Y., are now under construction. There are more than 700 patients at Fort Bayard, N. M.; the receiving hospital at New Haven, Conn., is in full operation, and Whipple Barracks, Ariz., is being rapidly put in shape by Major Holmberg as a receiving station.

It is imperative that all tuberculosis workers be informed of the plans and progress of the Government in this direction. More detailed information will be printed in a subsequent bulletin."

PHYSICIANS URGED TO ENTER SERVICE.—The following article by Captain J. Forrest Burnham, Medical Reserve Corps, has been sent recently through the *Daily Press* to the physicians of Lawrence:

"The Surgeons-General of the Army and Navy desire 7000 medical men of good character, under 55 years, today, and 3500 more within a year. Of this number, Lawrence and its three surrounding towns is asked for 30, one-half, or 15, to volunteer at once. Our territory has failed to do its share up to the present.

The war has continued over one year, and in spite of urgent appeals to the local profession, but five physicians have given up their practice and responded to our country's great and pressing need. Today, Lawrence has about

90 physicians under 55 years who are missing this unusual opportunity of adding to the name of good doctor that of brave physician.

Best medical authorities consider that the medical work of our section can be properly handled by 60 physicians and allow ample margin. The salary of medical officers can be made to support a physician's family, as the writer has seen frequently instanced in the cases of the many courageous medical friends he has met in a service of nearly a year with the colors.

It is strongly desired that relatives, patients and friends of our honorable physicians, urge them to become members of the Medical Reserve Corps and place themselves at the call of the Surgeons-General of the Army or Navy. By this means each physician may do valuable work in caring for the brave soldiers who are to win this war for us.

By a gentleman's agreement, one-half of all income collected by a stay-at-home physician, from patients of doctors in the service, is to be turned over to the family of the physician, to aid in the support of his family. In addition, all patients will be turned back to the absentee when he shall return.

The spirit of our former Lawrence medical brother, Dr. G. P. Howe, is surely looking down and asking us to complete the courageous work he so nobly began."

25,000 NURSES WANTED.—With the nation's reserve of trained nurses depleted because thousands are serving in military and naval hospitals both abroad and in the United States, it has become necessary to call immediately for 25,000 student nurses for training in American hospitals. A call for women between the ages of 19 and 35 has been issued. Following is the formal appeal:

"Across the sea, from France, with every closing day of the heroic struggle of our fighting men, there comes a more imperative call to the women of America to assume their full share of responsibility in winning this world war for the right of men, women and nations to live their own lives and determine their own fortunes.

There exists now an extreme necessity for at least 25,000 women of character, intelligence and education to fill the gaps in our hospital staffs caused by the calling of many thousands of skilled nurses to the fighting front. There is only one way to fill these gaps: by keeping our hospital training schools supplied with students, who are not only preparing for service abroad and at home at the end of their course and at the same time are equipping themselves to earn their living in one of the noblest of professions, but from the very outset of their course are serving their country as well as learning.

The Surgeon-General of the United States Army, the Surgeon-General of the United States Public Health Service, the American Red Cross, the General Medical Board, and the Woman's Committee of the Council of National Defence therefore unite in an earnest appeal for 25,000 young women, between the ages of 19 to 35 to enroll in what shall be called the United States Student Nurse Reserve. The enrollment will begin on July 29, 1918. Those who register in this volunteer body will engage to hold themselves in readiness until April 1, 1919, to be assigned to training schools in civilian hospitals or to the Army Nursing School, and begin their courses of study and active student nursing.

The service for which we are asking calls for the best that the womanhood of America can offer in courage, devotion and resourcefulness. We cannot go forward to victory overseas if the wives and families of our fighters are not sustained in health and strength; if we cannot protect our workers against the hazards of war industries; if we cannot defeat accident and disease, our enemies at home. Upon the health of the American people will depend the spirit of their forces in the field.

Acting on the urgency of the need, the state divisions of the Woman's Committee of the Council of National Defence are requested, through their local units, to enroll the 25,000 women needed. We ask the women of America to support us in our further effort not to lower American hospital standards and to give us the practical assurance of their support by going to the nearest recruiting station established by the Women's Committee of the Council of National Defence on or after July 29 and enrolling in the United States Student Nurse Reserve."

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 20, 1918, the number of deaths reported was 200, against 184 last year, with a rate of 13.30, against 12.42 last year. There were 35 deaths under one year of age, against 23 last year.

The number of cases of principal reportable diseases were: diphtheria, 50; scarlet fever, 15; measles, 83; whooping cough, 27; typhoid fever, 4; tuberculosis, 66.

Included in the above were the following cases of non-residents: diphtheria, 12; scarlet fever, 2; measles, 1; whooping cough, 1; tuberculosis, 6.

Total deaths from these diseases were: diphtheria, 2; measles, 2; whooping cough, 2; tuberculosis, 18.

DISTRICT NURSES' WORK INCREASES.—At an executive committee meeting of the Instructive

District Nursing Association, the work of the past six months was reviewed. During this period 111,348 visits were made by 105 nurses, a marked increase over the work of last year. Visits to the homes of victims of the infantile paralysis epidemic have decreased from 1937 to 719 during the year. The staff supervised 87 baby-weighing stations during the recent campaign, many cases being referred to the Association for further work.

GIFT FOR HALE HOSPITAL, HAVERHILL.—By the will of Helen M. Chase, \$200 has been bequeathed to the Hale Hospital, Haverhill.

CITY HOSPITAL OF WORCESTER.—The forty-seventh annual report of the City Hospital of Worcester, summarizes the work for the year 1917. 6,811 patients have received treatment, among whom were 1901 medical patients, 2407 surgical cases, 685 children, 836 cases of minor accidents, and 571 maternity patients. There were admitted to the out-patient department 5478 persons. The total number of visits was 25,744.

In the Training School for Nurses, 43 were graduated. Sixty probationers were received during the year. The kindergarten course has been continued as usual, and a course in dietetics has been added. The method of training nurses in surgical detail and technique, by means of mock operations, has been continued as in previous years. The hospital has offered a two years' training course for male nurses.

The work of the laboratory has been carried on in the usual chemical, bacteriological, and pathological divisions. In addition to the regular hospital work, the Wassermann test and complement-fixation test for gonorrhea have been done for the Worcester Health Department. The work of the roentgen department has been centralized and made more efficient.

The report contains statistical tables of operations, patients, and donations.

\$200,000 BEQUEATHED TO SALEM HOSPITAL.—The Salem Hospital authorities have announced that by the will of John E. Maynes, formerly of Salem, the hospital has been bequeathed the Maynes estate in Salem, consisting of a business block in Essex Street, with an assessed valuation of \$203,200. This property has been given to the hospital corporation, with the provision that a bronze tablet be erected and main-

tained in commemoration of Mr. Maynes' father and mother. The corporation has within the past year erected a new hospital in Highland Avenue, to replace the old hospital which was destroyed in the Salem fire.

\$1000 BEQUEATHED TO FRAMINGHAM HOSPITAL.—By the will of Cynthia A. Kendall of Framingham, \$1000 has been bequeathed to the Framingham Hospital.

TRAINING FOR PUBLIC HEALTH NURSING.—Forty young women have just enrolled in the Simmons College Instructive District Nursing Association Training School for public health nursing. Twenty of these students are graduate nurses and twenty are third-year pupil nurses, who, under the recent agreement between certain nearby hospitals and the training school—the object of which is to increase the number of public health nurses as speedily as is consistent with thorough training—are released from hospital duty to a four months' training in public health work. At the end of this period the pupil nurses will return to the hospitals, and with the hospital diploma will receive certificates as public health nurses, the four months of special study being included in the regular three-year training period.

RED CROSS HOSPITAL AT BUZZARDS BAY.—Through the generosity of William M. Wood, president of the American Woolen Company, the Red Cross has been able to open a convalescent hospital on the island of Cuttyhunk, Buzzards Bay. Mr. Wood has not only furnished the house, but will maintain it throughout the war for the use of wounded sailors and soldiers who are sufficiently recovered to recuperate at the seashore. Both the Red Cross and the State of Massachusetts are entitled to the use of the hospital, which is situated on the Wood estate. Dr. Norman E. Ditman is in charge of the work and the organization. As yet there have been no soldiers from France quartered there; and only a few from the camps and cantonments in the United States have been sent that far from the local hospitals. But in the near future the Red Cross expects to find good use for the hospital. Dr. Ditman has already sent a request for moving picture films to A. J. Philpott, publicity manager of the New England Red Cross division.

BABY HYGIENE ASSOCIATION.—According to an estimate based upon last year's figures and the growth of the work of the organization during the first six months of 1918, the Baby Hygiene Association will care for 6800 Boston babies during 1918.

For the first six months of the year, 4711 babies have been under supervision, an increase of 886 babies, or 23% over the figures for the corresponding period of last year.

During the past six months 480 medical conferences have been held, an increase of 78 over last year. The total conference attendance was 15,762, with an average of 33 per conference. This average is slightly lower than last year.

The number of visits by nurses for the six months was 35,012, an increase over last year of about 2800. For the first six months of 1917 there were 97½ months of nursing service, an average of a little more than 16 nurses a month. This year there have been 114¾ months of nursing service, with an average of 19 nurses a month.

The month of June compares most favorably with June of last year, the total number of babies cared for during the month being 3363, or 862 more than last year, and there have been more than one hundred new babies admitted. The number of conferences and the conference attendance have increased, and the average attendance has held the same as last year. The weekly registration continues to increase at a much more rapid rate than last year, reaching on June 29 a total of 3089 registered babies. The number of conferences held each week is now twenty, and last week the attendance was 952.

The Grove Hall Station, with a registration of 252 babies, now has two nurses and two medical conferences each week. The old East Boston Station, with a registration of 261, also has two nurses, making the number of staff nurses at the present time 21. The new station at the Trinity Neighborhood House and Day Nursery has a registration of 194, which makes the registration for East Boston about 450. The registration at Upham's Corner is 119, and with an average conference attendance last month of 34, this station can rank with some of the older stations. At Jamaica Plain the registration is 71. The growth of this station has been much less rapid, but during the summer

months the Association hopes to increase the registration.

HEALTH DEPARTMENT OF BOSTON.—The monthly bulletin of the Health Department of the city of Boston, for May, 1918, contains a timely suggestion on the subject of health fatigue. Young men and women are urged to consider their health, and not large wages, of primary importance. The war has necessitated an increase in the activities of the people, but the individual cannot work long hours and maintain his maximum efficiency, which is essential to the proper conduct of the war. Physical fatigue lowers resistance to disease. In order to supply the needs of the nation, industrial health must be safeguarded.

Another article published in this issue explains the efficacy of sun baths in maintaining health. The sun bath is especially applicable to all forms of disordered nutrition, to chronic dyspepsia, neurasthenia, exophthalmic goiter, Bright's disease, chronic rheumatism, and skin diseases.

Among other topics discussed are the importance of the teeth in the prevention of gastric ulcers, the condition of acidosis, and Fourth of July tetanus.

A report is made on recent Massachusetts legislation. Bills have been passed dealing with the physical examination of inmates of penal institutions, reports and records of venereal diseases, certificates of exemption from vaccination, the reporting of dangerous diseases to local boards of health, to the State Department of Health, the licensing of dispensaries, and prosecution for the selling of adulterated vinegar.

In the statistical record are reported 983 deaths, and 179 babies cared for. There are given statistics of medical inspection, of the bacteriological laboratory, of food, milk, and sanitary inspection, and of communicable diseases. A monthly meteorological summary is given for May.

TRAINING SCHOOLS FOR NURSES IN MASSACHUSETTS.—The Massachusetts State Nurses' Association has issued a survey of Training Schools for Nurses in the State of Massachusetts. The hospitals approved by the Association, both for regular training and for post-graduate work, are listed, with a brief description of their

general equipment and the requirements for admission and graduation.

PENIKESSE ISLAND FOR LEPEBS.—The Federal Government is considering Penikese Island, the leper colony of Massachusetts, as the place for confining all the lepers in the United States.

Dr. George W. McCoy, director of the hygienic laboratory, and Dr. William C. Woodward of the United States Public Health Service, have just completed an investigation authorized by Congress.

There are 1000 lepers in the United States, according to estimate. Massachusetts is now caring for twelve at the island. Not all suffering from the disease are confined. Secretary Robert W. Kelso of the State Board of Health believes that were the State to be combed at least fifty cases would be uncovered.

Leper colonies also exist off the coast of Louisiana and in the Honolulu Islands. The federal officers will inspect them as possible sites for the national leprosarium. Mr. Kelso is of the opinion that unsuitable climatic conditions of New England may cause the selection of a more southern site. This action would cause the abandonment of Penikese as a leper colony.

MASSACHUSETTS HEALTH COMMITTEE.—To solve public health problems, brought to a focus by the war, representatives of leading health conservation associations have organized the Massachusetts Health Committee, with the following officers.

Dr. Eugene R. Kelley, State Commissioner of Health, chairman; Miss Gertrude W. Peabody, vice chairman of the Child Welfare Department of the Council of National Defence, treasurer; Charles E. Bellatty of Boston University, director.

Other members of the committee are Bishop William Lawrence, representing the Society of Social Hygiene; Dr. Edward Reynolds, director of the American Society for the Control of Cancer; Dr. G. M. Kline, director of the Massachusetts Commission on Mental Diseases; Dr. V. Y. Bowditch, president of the Massachusetts Anti-Tuberculosis League; and Dr. Richard M. Smith, member of the Child Conservation Committee of the State Department of Health.

The committee has a substantial working fund, which it will use to help the War De-

partment make the young men in Massachusetts "fit to fight," and to coöperate with other agencies to lower the mortality rate for the State.

Through the courtesy of President L. H. Murlin the committee will maintain headquarters at the College of Business Administration of Boston University.

WAR SCHOOL IN BACTERIOLOGY.—The Harvard-Technology School of Public Health is offering to men and women intensive courses in bacteriology, chemistry, and the various divisions of health work and administration. The enrollment includes twenty women and nine men. The school is the outcome of an effort made by Dr. W. T. Sedgwick to train women to take the places of men in laboratories in base hospitals.

The work will be pointed directly toward the training of laboratory technicians, and the courses will include bacteriology, chemistry, industrial hygiene, vital statistics, sanitary science and public health, laboratory methods, and the various laboratory tests for infectious diseases, together with military hygiene and preventive medicine. Most of the work will be done in the laboratories at Tech, the purely medical items being taken care of at the Harvard Medical School. Bacteriology will be taught by C. C. Stockman, 2d, a graduate of M. I. T., and an instructor in the regular courses; chemistry will be in charge of Professor Edward Mueller, whose specialty at the Institute is bio-chemistry; Dr. Slaek, long with the Boston Board of Health, will teach the laboratory methods; while the infectious disease tests will be under the care of Dr. William A. Hinton of Harvard. The registrar and general manager of the work is W. E. Brown, instructor in the Harvard-Technology School under the general supervision of Dr. Sedgwick. Dr. M. J. Rosenau, who is director of the school, and Professor George C. Whipple will aid if occasion needs.

This intensive school has called for students of the highest class and a majority of those registered bear college degrees. Radcliffe is represented by five of the women, Wellesley by four, and Simmons, Smith, Mount Holyoke, Oberlin and Oregon Aggie by one each, while the men come from Harvard, Bates, Dartmouth, Tufts, Trinity, and Johns Hopkins.

GIFTS TO HOSPITALS.—By the will of Dr. John E. Somers, Cambridge, \$1000 has been bequeathed to the Carney Hospital of South Boston. The residue of his estate has been left to the Holy Ghost Hospital.

Correspondence.

CHANGES IN SURGICAL TREATMENT.

Westport, Essex Co., New York,

July 15, 1918.

Mr. Editor:

Things come and things go. In surgery this is eminently true.

When I was a medical student in Paris, 'way back in the 1860's, Maisonneuve, a great surgeon of the Hôtel Dieu Hospital, after an amputation, put a rubber cap around the fresh stump, made a vacuum with a pump and then covered the raw surface with a very thick layer of cotton. In this way, he claimed to get the best obtainable results.

Later, we had advanced Listerism and the abundant use of carbolic acid. I remember operations at the New York Hospital, where, during them, the atmosphere was strongly impregnated with carbolic spray and solutions of the acid were always used in wound dressings.

Then came the days of bichloride of mercury. For several years this powerful antiseptic and poison was the indispensable agent in all wound treatment. With the passing of bichloride, we had insistence upon free drainage and liberal use of sterilized salt solution. Still later, painting the skin of the patient with tincture of iodine, without preliminary washing, was recognized as a valuable surgical advance. Even abdominal sections were thus made with relative impunity, and great faith existed as to the worth of this method of local disinfection. Only a short time since, Carrel showed that frequent, or constant, irrigation with a mild detergent solution, is far preferable to the use of powerful antiseptics.

Finally, we have greater insistence than ever before, and especially at the front after a battle, upon free excision of all mutilated parts from shell or shrapnel, followed by sewing up of wounds immediately afterwards so as to ward off infection and get union by first intention. In what is truth?

Times and customs change. So do treatments surgical. I believe we shall ere long go back to some applications and doings of the old time because they are more nearly correct. A few among us have found out again that a poultice is at times preferable to the ice-bag, and leeches and venesection may save lives now often sacrificed.

Alcohol, pure or diluted, was the favorite wound dressing of the famous French surgeon Nélaton in 1865. It was again vaunted by Senn in 1898 during the Spanish-American war as being the best up to date. To me this affirmation still remains true. Not only is it the best wound dressing, it is also the simplest.

BEVERLEY ROBINSON, M.D.

SOCIETY NOTICE.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The regular midsummer meeting of the Society will be held on Wednesday, July 31, 1918, at the Villa Napoli, Nantasket Beach. A fish dinner will be served at 1.30 P.M. Steamers leave Rowe's Wharf at 11.15 and 12.15. Baseball field available; also an opportunity for swimming. Business: To see what action the Society will take towards reimbursing the Treasurer of The Massachusetts Medical Society for the dues of members who have enrolled in the Medical Reserve Corps.

CHARLES W. ADAMS, Secretary.

The Boston Medical and Surgical Journal

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Address.

THE PHYSICAL EXAMINATION AS A CIVIL SERVICE INSTRUMENT.*

By ANDREW F. DOWNING, M.D., CAMBRIDGE, MASS.

Physical Inspector, Massachusetts Civil Service Commission; Assistant Physician to Out-Patients, Boston Consumptives' Hospital; member of delegation representing the Commonwealth of Massachusetts at the annual convention of The Assembly of Civil Service Commissions (United States and Canada), held at Milwaukee, Wisconsin, June, 1918.

AN invitation to discuss in this national convention a subject of no little importance to Civil Service, is an honor highly appreciated by a member of the medical profession. The seeming simplicity of this problem of physical examination has given rise to the mistaken idea, even among those of my own profession, that either there is very little to be said about it, or that everything which can be said has already been well and finally expressed. Since simplicity, however, is so often the superlative of complexity, let us test the verity of the paradox by submitting this topic to a more philosophical discussion than it has yet provoked in the forum of this assembly.

I am not altogether imaginative when I remind you that before the days of the modern

Civil Service Commission, the only Civil Service law was the law of physical diagnosis, and the only Civil Service Commissioner, the physical examiner, on whose knowledge, good judgment, honesty, and civic perception depended the physical excellence or inferiority of the personnel of many of our police and fire organizations. That this quasi-civil service law was indifferently administered is now a matter of history. Its administrator, however, was no more blamable than many other excellent citizens whose reason, bewitched by the seductive euphony of a slogan more specious and more ancient than autoeracy, scorned the prosaic logic that links a victim with the spoils and the victor. If I may paraphrase a line from Cassius in *Julius Caesar*, the fault was not in their stars, but in their own civic color-blindness, that they were underlings.

In proof of this, there is abundant evidence, classical as well as conclusive. I refer to the sketches of that old-time cartoonist who waxed fat on a dull-witted public, by depicting with monotonous regularity the physical and mental obesity of a grotesque, club-swinging figure dressed in the uniform of a policeman. Happily there were those who refused to laugh at a joke which was all on themselves and at the expense of the sacred ideals of their fathers.

* Read at Milwaukee, Wis., June 21, 1918.

These were your forebears, in whose memory we are here gathered and whose coming marked the passing of that old cartoonist. Therefore if I seem to be impertinent in reminding you of your kinship with the doctor and the jokester, it is only because I feel that the failure of the former is entirely mitigated by the splendid tribute paid to you by the latter, when, like Swift,

"He showed by one satiric touch,
No nation wanted you so much."

Twelve years of labor in the field of Civil Service would represent much time ill-spent if, early in my career, I did not recognize the fallacy of the clinical attitude of mind of my profession which classifies those departments of government that enlist medical service as mere dependencies of the empire of medicine. Justly impatient with the foolhardiness of this fallacy, men with civic vision raised the science of public health to a dignity and efficiency which it never knew under the old feudal system of its clinical ancestor. I point the moral not only to adorn the tale, but also to serve notice that in the exposition of this subject, I fully realize that I am a medical passenger riding on a branch of the main governmental line. To complete the metaphor, let me add that I was shunted in from a siding. In other words, in the field of Civil Service, a physical examiner performs a medical function subordinate to the function of the government, and not a governmental function subordinate to the function of medicine. Hence in this discussion, I shall endeavor to forget that I am a student of medicine, and shall try to think with the more logical mind of a student of government. Like Virgil, singing of arms and the man, I intend no harangue anatomic.

At the outset, the purpose of the physical examination must be clearly understood. To understand this purpose, it is essential that we appreciate in a broad way, at least, not only the ideals which direct every purpose of Civil Service, but also those which direct every purpose and function of true democratic government. Briefly, true democracy means these three things: first, equal opportunity for all; second, special privilege to none; and third, the utilization of superior ability. The first two desiderata recognize the moral function of government. The third emphasizes the vital importance of the economic function, but it

points particularly to the indispensability of the strongest possible leadership, without which the moral and economic functions cannot be co-ordinated, or maintained inseparable and inviolable. Autocracy, interested only in the materialistic philosophy of economics, demands for her very existence the utilization of superior ability; but she differs from democracy in that she substitutes steel and high explosives for the moral force which distinguishes what Mr. Ralph Adams Cram calls "the democracy of ideal." While democracy is loath to admit that complete moral paralysis is the price of economic success, she has not demonstrated that moral cretinism or ethical anaemia can achieve anything more than economic mediocrity. Under the baneful influence of the alien efficiency expert, less efficient, less expert, and less human than a cash register; and under the coarse and bogus leadership of the economic juggler lacking the honesty, the accuracy, and even the soul of an adding machine, democracy has seen stricken from her budget the modest salary of her sealer of moral weights and moral measures.

These three distinguishing marks of democracy are also the three distinguishing marks of Civil Service. Primarily, you are champions of the moral function of government; but since the integrity of democracy demands that the economic and the moral functions be indissoluble, you cannot avoid challenging the former when it runs amuck in your section of the moral domain. Representing therefore the potential energy of inseparable righteousness and efficiency in government, you are more than an employment bureau. Milton did not mean you when he said, "They also serve who only stand and wait." Yours is a condition of activity within, and not of inertia without, the gates of government. You can fail only if your conception of efficiency means thralldom to the bloodless and pitiless rule of economics.

The physical examination, therefore, like other instruments in your technic of selection, is concerned fundamentally in assisting you to solve the complex problem of efficiency presented by the many difficulties which beset your determined purpose to have the public service enjoy the benefits that can come only from the utilization of superior ability. While from a purely Civil Service point of view, physical excellence is de-

manded as a pledge of present and future usefulness, the physical examination, nevertheless, expresses many other ideas which cannot be ignored by Civil Service Commissions who would be progressive. More than any other governmental activity you have been influenced, consciously or unconsciously, by the legislation which has enabled our public health boards to achieve such beneficent results, and also by those ideas expressed in such creations of modern social legislation as the industrial accident board, the board of labor and industry, and the minimum wage commission. With all these you must discover your points of contact, for underlying them are principles which you must recognize and support, if you would maintain a high degree of efficiency for yourselves, as well as for those governmental departments within your jurisdiction.

To the influence of this modern social legislation, I can only briefly refer, but that you may understand my meaning, let me ask you if I am any less a Civil Service man, if I keep out of the public service a communicable disease, such as tuberculosis or syphilis, or refuse to pass a man who has never been vaccinated against smallpox, until he has been successfully vaccinated? Or am I any less your representative, if I refuse to pass for a dangerous job an applicant with a physical defect which may contribute to the unnecessary maiming or killing of his fellow workmen? It is true that these injured men will be compensated, if they are protected under the Workingmen's Compensation Act; but the justice of that act will in the long run be more far-reaching, and the compensation of the injured and of the families of the dead more adequate, than at present, if all possible means are taken to prevent accident. If industry is to shoulder the burden of accident, by adding its cost to the cost of production, we must do our part to reduce that burden, so that in the end the workers and their families and the nation at large will enjoy those happier social and financial conditions that will obtain when accidents are reduced to a minimum.

In the first case, I am exercising a function of preventive medicine to protect the public health; and in the second case, I am contributing medical service to the prevention of accident, in order to advance the cause of social justice. I am, however, contributing also in

your name to the efficiency of government, which is in both cases potentially threatened. Incidentally, let me ask you also if an anti-vaccinationist, or the Civil Service reformer whose social myopia or astigmatism is still unrefracted, can visualize the countless governmental ramifications that make the modern Civil Service problem, for the amateur or the faddist, a hopeless soliloquy, in which he reveals a pitiful hesitancy which even dwarfs the classical irresolution of the melancholy Dane.

Here let us not forget also that efficiency connotes mental as well as physical superiority. To a greater or less extent, it means a combination of the mental and the physical, in proportions varying according to the demands of different occupations. Psychologically, the idea of the purely physical, as it relates to the human being, is associated in the popular mind with the ideas of strength and beauty, and their opposites. We forget that other physical quality which contributes to the creation or the expression of the useful as well as the beautiful. That quality is skill—the skill of the hand, which dignifies the arts and crafts and trades, and which in the history of man, in his struggle towards civilization, long preceded his escape from intellectual oblivion. Indeed it made possible that escape. Usually the endowment of a finely co-ordinated nervous system, and of a mind more or less richly imaginative, as often as not a stranger to great mental capacity, and occasionally having for its handmaids physical weakness and physical deformity, skill remains a quality of intrinsic value.

Hence in the psychology of the Civil Service mind, the idea of physical skill must be substituted for the idea of physical beauty, at least until such a time as we shall be drafted as judges of the increasingly popular modern beauty contest. At present we must be neutral, sensibly avoiding, however, a condition of armed neutrality, which might tempt beauty to prove at our expense that no man can be adamant to her charm. I cannot help thinking that the importance of physical skill will become more and more apparent as we awake to the seriousness of the inevitable problem which our country will be called upon to solve for the social and financial uplift of her soldiers who are crippled in this present war. In

the presence of this quality of physical skill, the physical examination seems to me to be a piece of glass arrogantly attempting to scratch a diamond, the value of which is enhanced rather than diminished by a crude or unattractive setting.

Moreover, inasmuch as a poor physical equipment lacks the necessary recuperative power against the physiological fatigue peculiar to certain occupations—a fatigue which is mental and nervous as well as physical—the physical examination transcends the idea of mere physical efficiency. Herein lies another danger. Let me warn you therefore against giving to this test too exalted a position in the hierarchy of your requirements. If you would hold steadfast to your purpose of utilizing superior ability, you must avoid the ever present temptation to sacrifice on the one hand, mind to matter, and on the other hand, matter to mind. Early in your history, in the case of applicants for police and fire service, the sacrifice of the physical to the mental was quickly recognized and properly remedied. Obviously, as a qualification for admission to these branches of the service, physical strength is of paramount importance. With only a medical examination, it is impossible to rate these applicants on the basis of strength, speed, and agility.

Originally, their mental capacities, as indicated by their marks on the written examination, determined their order on the list of eligibles. Thus many who were physically sound, but inferior in physical strength, enjoyed a special privilege on account of a high mental mark. Realizing that this inconsistency nullified not only your second purpose, to allow special privilege to none, but also your third and ultimate purpose to utilize superior ability, you perfected your technic of physical selection in the case of these applicants, by adding the strength test, in order that they may rise or fall to more equitable positions on the list. I heartily agree to the soundness of the judgment which would give to the strength test mark a greater weight than is given to the mental mark.

In the broader field, in which lie those positions for which physical skill or mental attainment is the criterion of fitness, your physical examiner often feels as an aviator must feel when he is sailing the heavens without a com-

pass after dark. In the presence of communicable disease, it is easy to make a decision, but more often than not the examining physician needs the assistance of his superiors, who must be constantly on guard to prevent this valuable but not unerring instrument of efficiency from contributing to their own inefficiency, as well as to the inefficiency of the public service. If the physical examination is allowed to defeat the ideals on which rests the touchstone of your usefulness, the fault is in you and not in the physical examination.

In order to emphasize further the efficiency aspect of the physical examination, I wish to unsettle an idea which exists not only in the minds of many applicants, but also in the minds of not a few students of Civil Service. The reasonableness of examining physically applicants for police and fire service, everyone admits; but there are few who seem to understand clearly the reason for the physical examination of applicants for unpensioned positions. The confusion arises from inferring a relationship between the pension system and the physical examination which does not exist. The physical examination was applied to police and fire applicants before their pension system was established. It is being applied to them today where no pension system exists. It would be applied tomorrow if every pension system were abolished. Even maximum age limits were established before pension systems were created. From your standpoint, minimum and maximum age requirements are efficiency precautions, the origin of which is explained by your third desideratum, the utilization of superior ability. The pension system (I am of course not referring to the compulsory contributory form) represents a gratuitous reward for service performed, regardless of its quality; the physical examination represents the promissory note demanded as a pledge of efficient service to be performed. The pension system represents altruism; the physical examination represents justice, and justice though merciful is not altruistic. The pension system is the clearing house for the inevitable inefficiency of age; the physical examination personifies the director of the mint from which is issued the new currency of the attractive and desirable efficiency of youth. You stand for the efficiency of the applicant, whether he seeks a pensioned or an unpensioned position.

I have dwelt at length upon this phase of the subject, because, having an almost personal relation with the applicants, I have learned that much of the hostility to Civil Service is due to misunderstanding and doubt which could be easily dispelled by the creation of the proper machinery on your part. The employees of other governmental departments, besides being familiar with office technique, know much about the purpose of their department and its practical relation to government. Civil Service, however, having a distinctly philosophical relation to government, as well as a very practical relation, is more difficult to comprehend in its entirety. It is more than rules and regulations and office technique. In other departments, the employee is quietly asked by the citizen, "What is the rule or the law?" The employee in the offices of the Civil Service Commission is often asked in a tone that is anything but meek, "Why is this rule or this law?" In the first case, the citizen wants to be sure that he isn't breaking the law; in the second case, he wants to be equally certain that the law isn't breaking him. In the first case, he bows to the time-honored majesty of the law; in the second case, he sees no reason why that venerable aristocrat shouldn't bow to the long-neglected majesty of the individual.

It ought to be just as easy to teach those who look upon Civil Service as an impregnable barricade intended to discourage worthy ambition to see in it a rock of safety for those who are proficient. In the title of this paper, I have used the word instrument because I am so often obliged to explain that the physical examination is not a weapon, and that I am not an armed soldier on guard before a besieged citadel, but a peaceful umpire of a manly sport, in which the loser must shake the hand of the winner. I often tell the applicants, in the vernacular of the athletic world, that they have entered an "open meet" in which there are no handicap events. The establishment by every Commission of a department of information, in charge of someone who is more than an office technician, would do much to enlighten the applicants and create among them and their friends a more reasonable attitude towards Civil Service. If your introduction to the public were through such an agency, you would be spared the needless irritation of many petty problems, and your physical examiner would

not find it necessary to explain that he is not advancing the cause of positive eugenics, and that the physical examination is not intended as an indignity.

From what I have said so far concerning its purpose, it is apparent that the physical examination, like the written, must be responsive to the various demands of different occupations or positions; for unless an instrument be skillfully and wisely used, a knowledge of its purpose availeth little. A test of physical fitness divides the applicants into two distinct classes, one which includes police and fire applicants, and the other which includes the applicants for all other positions. In the case of the former, the problem resolves itself into first eliminating the physically unsound by the so-called medical examination, and then by means of the strength test, further eliminating from those physically sound those who are physically weak. Furthermore, the strength test performs another function, for it rates on a percentage basis the speed, strength, and agility of these applicants according to their respective merits. I believe that it also has a moral effect, because since it is the real barrier to the job, it is a silent means of stimulating the serious applicant to develop his speed, strength, and agility, not only because he wants the job, but also because of that inherent human trait which makes men in competition anxious to excel in order that they may also win the respect of their competitors. The man who has altogether neglected his physical development, or has allowed himself to become soft through laziness or dissipation, suffers a blow to his pride which either eliminates him forever, or fills him with a grim determination to develop his latent strength, so that in some future examination he may win back his lost prestige and regain the esteem of his friends. Police and fire applicants have nothing but contempt for the competitor who isn't there physically. This is probably the reason why you seldom get a complaint from a strength test failure, although complaints from failures on the written examination are common. And the explanation is this. Few are unwise enough to be arrogant over their physical strength, especially if their measure has been taken; while on the other hand, fewer still are wise enough to be modest concerning their mental capacity, even if that capacity can be measured as accurately as the few scattered hairs on the top of a bald head can be numbered.

I regard the strength test as one of the most valuable assets of Civil Service. Up to 1906, when I assumed my present position, it was applied to the police and fire applicants of only about six or seven Massachusetts cities. In that year, the Massachusetts Commission extended this test to all the other cities in the state and to those fifty or more towns which had voted to place their fire and police organizations under Civil Service. The physical material of those cities where the test was originally applied is all that can be desired, for the strength test, by giving an opportunity to each succeeding class of applicants to equal previous records or establish new ones, has created a physical "noblesse oblige" for those entering these services. In the other cities, the same benefits are already apparent, for the material has improved to such an extent that the strength test exhibitions of my early years stand out as burlesques of those of the present day. This test has eliminated the flabby-muscle applicant who in those days supplied amusement for the gallery, and it has made the careless young fellow realize that the gymnasium, and not the street corner or the pool room, is the evening rendezvous of those who get the job.

On account of the war, the former abundance and excellence of police and fire material has been replaced by scarcity and mediocrity. In the absence of excellence, however, mediocrity is preferable to worthless inferiority, but the temptation will be to relieve the scarcity by substituting the latter for the former. I believe that this war condition can be met without sacrificing one single principle of Civil Service. If you have neither the technic nor the ability to meet an emergency, then you deserve to be ignored.

You would not have any patience with the physician who allowed a man to bleed to death for want of a tourniquet while he went off to get a sterile dressing. Let us grasp this first aid idea expressed by the tourniquet. If an appointing official can get a man for a job, so can you; and even if he cannot get one you can get one for him. The real test is always to find Garcia; the easiest part is to deliver the message. This war has put it up to you to find Garcia.

Now the only elements to be considered in any scheme of physical selection are soundness of body, speed, strength, and agility. These are altogether lost sight of by the critic who

says that our examination does not test those heroic qualities with which certain men think themselves exclusively endowed. It is not intended to do this any more than its function is to eliminate the lazy and the impudent, and I don't know any system of physical selection that can do so. Police and fire departments want not heroes, but efficient workers. The applicants themselves have no romantic ideas about the positions which they are seeking. To them it is a job better than the one which they have. A consumptive or a weakling may qualify as a hero, but not as a fireman or a policeman. I have talked with more than fifteen thousand of these police and fire applicants during my years in Civil Service, and I have yet to find one who wants to be a fireman because he thinks that he has inherited, in the language of the old hand-tub fire-fighter, the ability to "eat smoke," or a policeman, because he thinks that Heaven ordained him to be a sleuth. When asked why he wants the job, his answer is always the same; that he needs it, not only this year when he fails to get it, but next year and the next, when he tries for it again.

Health, strength, speed, agility, and intelligence, therefore, are the only standards by which they can be fairly or accurately measured. These are the acid tests to which their real differences respond. Height, weight, and age, limited as they are by our minimum and maximum figures, express differences so slight as to be almost negligible, when they are counterbalanced by the strength test. I have but little patience with boards of laymen who, knowing nothing about physical qualifications, will haggle over the question of age, height, and weight, as if they were the only things worth considering. The technic of Civil Service selection will take care of all this by a test which has more respect for physical power than for physical pulchritude. That test is founded on some self-evident truths. A good big man is better than a good small man; a poor small man is at least no worse than a poor big man; indeed he may be better, because the big man by actual weight represents more physical uselessness. That a good small man is better than a poor big man is then too evident to need any further explanation. The same is true of age. A young man ought to be a better man physically than one who is some years older. If in certain cases, it can be proved that this is not always true, the test that proves it ought to

merit some consideration. To sacrifice to height, weight, or age, superiority in health, strength, speed and agility, even though this superiority represents only mediocrity, is a big mistake.

There is a vast difference between the man who fails on the strength test and the man who just gets a pass mark. It is the difference between bad and good. There is also a big difference between the man who gets only 70% or 75% and the man who gets 85% or more; but it is the difference between better and best. So far as height is concerned, the advantage is more often than not on the side of him who lacks an inch or two of the other fellow. Weight is a more valuable asset than height, for usually, other things being equal, the superiority is with the heavier man, provided his weight is not due to obesity. As for age, as long as you apply the strength test, it makes little difference whether your maximum age is forty or thirty-three. A man is not necessarily more decadent physically at thirty-eight or forty than at thirty-three. The important fact is that at thirty-three, he makes a sorry comparison with his younger brother of twenty-five. Therefore when you hear a friend of forty boast that he is as young as he ever was, find out whether he means thirty-three or twenty-five. If he means the former, don't argue the case, for he is probably right, and normal and happy besides. But if you have a friend of forty who tells you that he is as young as at twenty-five, advise him to have his blood-pressure looked into, for he is probably beginning to feel that initial exhilaration which comes with a rising blood-pressure. I have a wholesome respect for the man over thirty who passes the strength test, for he proves that he is not only worthy of his hire, but also that the decade between thirty and forty is not a period of true physical decadence.

The efficiency of the service will be but little impaired and the number of applicants appreciably increased during the war period, by keeping the weight as it is, by lowering the minimum height at least one half inch, and by raising the maximum age by at least five years. The strength test will decide the age question, for, as I have said before, a man who can pass this test is able to satisfy the demands of a reasonable standard of efficiency. The minimum police heights are intended primarily to standardize the size of the men in the various

police departments. That there is good reason for this, I do not deny, but I do maintain that as far as appearance goes, there is no appreciable difference between the man five feet seven and a half inches, and the man five feet eight inches, or between the man five feet six and a half inches and the man five feet seven inches, provided their weights are the same. It has always been my feeling that a man no more than half an inch below the required minimum height should be placed on the list of eligibles, if he obtains a mark of 85% or over on the strength test. He is giving a *quid pro quo*, but the public service is the winner in the exchange, for the *quid* is so much more valuable than the *quo*.

Fire departments, especially, have paid the toll of physical inferiority to the nemesis of height. Wrongfully assuming that the establishment of a minimum height for fire applicants, one inch under, or equal to, the minimum for police applicants, would secure the police type of man for their department, fire department heads have been responsible for the knock-out blow administered to much excellent physical material by the measuring-rod, the only tool in the kit of the physical examiner which is dedicated to the ornamental aspect of the Civil Service applicant. To those department heads who, on account of a lack of imagination, are not practical enough to allow Civil Service to give them physical material which is useful rather than ornamental, I recommend these lines from Bobby Burns, in which the word height is substituted for the word "rank"

"The height is but the guinea's stamp,
The man's the gowd (gold) for a' that."

On several occasions, I have been told by Fire Department officials that there must be something wrong with our method of physical selection, since it does not supply to their service the same type of man which it supplies to the police departments. The fallacy of this statement consists in assuming that Civil Service Commissions can create physical material. Obviously, they can send to these departments of the public service only the best of the physical material which does apply, and that they do so is beyond dispute. I want to emphasize that statement, because there is no more tangible proof of your efficiency than the general physical excellence of those police and fire de-

partments in the selection of whose members you have been unhampered. As I have said before, the moral effect of the strength test is apparent in the pride which many of these men take in keeping themselves physically fit long after they have passed the rugged period of youth. I know of a fire department for which the only physical requirement (a requirement established by the state legislature and not by Civil Service) is a minimum height of five feet five inches. There is no minimum weight; and if it were not for the Civil Service strength test, there would be no protection for this department against an invasion of human paper weights. If another fire department establishes a minimum height, weight, and age, identical with the same minimum requirements for the police force of the same city, the Civil Service Commission is not responsible, if, on account of the lack of applicants meeting those requirements, it becomes impossible to maintain an eligible list from which that department can be recruited.

In Massachusetts, men of police size are seldom found among fire applicants. As a rule, when you do find them, it is because they have not yet reached the minimum police age, which in some cities is several years above the minimum fire age. Hence many men of police size avail themselves of the opportunity to mark time in the fire department, until they reach the minimum police age. In looking over my records, I find that in twelve years in the whole State of Massachusetts, only twenty-eight police applicants were also applicants for the fire service; and in all but two cases, these applicants resided in the same city. In every case their preference was the police service, but in nearly every case, the strength test record indicated only inferiority or mediocrity. In other words, it has been our experience in Massachusetts that those who apply for police service do not want positions in the fire department. Police candidates are more numerous, bigger, and altogether physically better than fire applicants. Among police applicants I frequently see those who are already serving as firemen; but I cannot recall one single instance when there has been a policeman among any group of fire candidates whom I have ever examined. Moreover, the many excellent police applicants who year after year just miss an appointment never compete for positions in the fire service, which in many cases they could

easily snatch from those who otherwise get them. A change to the two platoon system might tend to popularize the fire service, and thus make it more attractive than it seems to be at the present time.

The minimum height and weight of fire applicants must be established with the idea of maintaining an area of selection large enough to meet the demands of the service. When the minimum police size is five feet eight inches and one hundred and forty pounds, the area of fire selection is only one inch wide, if the size requirement for this service is fixed at five feet seven inches, and one hundred and forty pounds. Of course if the minimum fire age is below the minimum police age, there is a larger area from which to select the applicants, but in my opinion, the advantage of this is nullified by a ridiculous and inexcusable condition which forces the fire service to be a training school for many future policemen. For the police and the fire service, there should be the same minimum age; and the minimum size requirement of the fire applicant should be at least two inches and ten pounds below the minimum size requirement for the police applicant.

Thus if you require five feet eight inches and one hundred and forty pounds for a policeman, you ought to require for a fireman, five feet six inches and a hundred and thirty pounds; and when the police requirement is five feet seven inches and one hundred and thirty-five pounds, the fire requirement will be five feet five inches and one hundred and twenty-five pounds. Some will object on the ground that this man five feet five inches and one hundred and twenty-five pounds is too small; but to them I shall only reply that it was about this man and not about the female of the species that it was originally said, "Good things come in small packages." He represents a type broad of shoulder and deep of chest, with muscles well developed for speed, strength, and agility. These are a few ideas concerning the physical examination in its most satisfactory phase, for in its application to police and fire candidates, it is decidedly a satisfactory instrument of efficiency.

Its success is not in any supernatural quality with which it is endowed, but rather in its consistent and unfailing reaction to every test of those three ideals which democracy represents, and to which your every effort is dedicated. You

will not, I know, think me boastful of the state which I have the honor to represent, if here in this national convention, I pay a tardy tribute to that Massachusetts Commission of thirty years ago, who first saw the necessity of applying this system of physical selection to police and fire applicants. In paying this tardy tribute, it is only proper to mention that Commission of 1906, to whose vision and energy was due the universal application of this test to the police and fire applicants of the Commonwealth, and the extension of the physical examination to include everyone but clerks and stenographers. I am innocent of any thought of self-praise, when I say that it is a pleasure for me to whom they entrusted this task to tell them that it has accomplished all that they hoped for.

It seems to me that we subordinates would render a better account of our stewardship to you gentlemen who are directly responsible to the people for the wise administration of Civil Service, if, in addition to our yearly report, which is merely the dry measure of the quantity of work done, we would also give you some idea of its Civil Service quality, by subjecting it to the test of those three desiderata on which depends the success or failure of every Civil Service activity. My long experience with one of the oldest instruments, and in my judgment the most satisfactory, in the technic of Civil Service selection, has made me look upon the pioneers in this work as men who hold in government the place which Pasteur holds in medicine. He it was who taught us that the ideal treatment of disease is its prevention. Likewise those pioneers made us realize that prevention is the only cure for corrupt government. They were more than mere prescription writers. And just as Alfred Hayes has rightfully and beautifully called the Pasteur Institute at Paris, the Arsenal of Life, so may we, catching the spirit of the tribute, call the institution of Civil Service, which they founded, the Arsenal of Good Government.

When you go out of this field into the larger field, where the efficiency of the individual is not so easily determined by the physical examination, "Hills peep o'er hills, and Alps on Alps arise." The technic of the so-called medical examination does not lend itself readily to a system of percentage marking. Such systems exist, I know, but I trust that I may be pardoned for the hyperbole, when I say that

the only interest which they have for me is the amusement which I get from attempting to figure out a pass mark for a decapitated, armless, and legless individual. I am willing to be convinced that I am wrong in my belief that if a physical defect is sufficient cause for a percentage reduction, it is sufficient cause for an absolute rejection. I know that I am right when I reject a telephone operator who is deaf; but I think that my Commission ought to reject me if I am responsible for staging a hearing, at which an applicant for the same position asks to be enlightened as to the relation between a pronated ankle and operating a switch-board. I know also that I am right, if I reject a stenographer who is tuberculous; but I am not competent to judge the ability of an applicant for the same position who has only one arm. It is more than possible that the efficiency of such an individual may make the supposed efficiency of a normal individual look like gross inefficiency.

Promotion physical examinations, especially fire and police promotions, are still waiting for the last word. To make promotions in these departments depend too much on physical standards, to a certain extent puts a premium on cowardice. Men will avoid danger as well as dissipation, if too high a physical standard is applied to them after years of service. They cannot help showing the wear and tear of time, and high blood pressure, heart lesions, hernia, varicose veins, flat-foot, and defective vision are to be expected. In Massachusetts, applicants for police and fire promotion are examined and their physical condition is submitted to the appointing official. The Civil Service Commission reserves the right to reject in such cases as chronic alcoholism, locomotor ataxia, or other serious disease of the nervous system, excessively high blood-pressure and several other conditions. The fact which I wish to emphasize is that we have established no arbitrary physical standard, preferring instead to consider each case on its merits. At present, I am opposed to arbitrary physical standards, because, in this broader field of service, we have not yet carefully studied the physical demands of various occupations, or learned to strike a proper balance between the physical, and the mental and moral. In the case of superior officers, whether of the fire and police or other services, physical superiority is not always a

satisfactory substitute for mental and moral excellence.

There is another matter which deserves our attention. It concerns the war cripple. In the words of the editor of *Collier's*, Mr. Mark Sullivan, "We have not yet come to dread the day that brings the week's casualty list, nor learned to cover with silence the fresh draft on our fortitude. Our wounded have not come limping back to our doorsteps." This war is going to test our ability to visualize many new governmental activities. One of these will be the reëducation and reconstruction of the war cripple. We are at the beginning of an age in which the cripple is going to move up and not down. He will not have to ask for charity, for he will be made efficient; so efficient in some cases that he will set the standard for the normal individual. For this reason, his case will demand an answer from Civil Service. To wait until the question is asked, and then to point carelessly to the physical examination as the only answer, will be a confession of our own unpreparedness, a disparagement of the dignity of others, and an arrogant glorification of ourselves. What the answer will be, no one can predict, for it is a problem pregnant with perplexity. Its solution demands, on the one hand, an intimate knowledge of the methods and results of this system of re-education, and on the other hand, an equally intimate knowledge of the physical, mental, and moral requirements, and the social exigencies of the many occupations in which workers, skilled and unskilled, assist in the business of government. Practical examinations to test the efficiency of applicants for positions in which skill and special training are essential must be speeded on their journey towards perfection: for in this broader field, the physical examination cannot reach its acme of usefulness until a practical test of efficiency gives to it that confidence and degree of accuracy which it owes to the strength test in the selection of police and fire applicants. This field of skilled and unskilled labor would still be an unexplored jungle if it were not for the work of a few Commissions whose wisdom in developing the practical efficiency test has written one of the most important chapters in the history of Civil Service. Here it is that we must be responsive to the demands of our modern social legislation. A general knowledge of the dangers and diseases of various occupations; a knowledge of safety pre-

cautions, human and mechanical; a knowledge of sanitation, of hygiene, and of the physiological fatigue to which every worker is exposed—must be added to the intellectual equipment of those students of democratic government who would escape intellectual stagnation.

I maintain that the true test of the efficiency of a Civil Service Commission is not the successful filling of a few five thousand dollar positions, but rather the more difficult task of filling with consistent success the five thousand or ten thousand \$900 or \$1200 positions at the bottom of the service. In the former case, yours is the easier part of delivering the message. The credit of finding Garcia belongs to the special examiners. In the latter case, the glory is all yours, and the joy no man can take from you. There at the bottom of the service, at its very foundation, building here, tearing down there, Civil Service is engaged in a trying task that will always be unfinished. In this work at the bottom of the service, the value of the physical examination will ultimately depend on our knowledge of the gross and microscopic anatomy and pathology of democratic government. A treatise on the pathology of democratic government might well be called "The Modern Anatomy of Melancholy."

Let me warn you against establishing an unreasonably high standard of vision for certain high grade positions. When the efficiency of the employee is dependent on his special knowledge rather than on his physical perfection, there is no reason for rejecting him if his visual defect is corrected by glasses. Men have eyes but see not, and ears, but hear not. We must distinguish between mental and ocular vision. This suggests the necessity of a psychological test of the applicant's powers of concentration and observation by the examining department. It is beyond the scope of the physical examination.

I cannot leave this subject without saying a word on the question of using the physical examination as a coarse sieve to accomplish a preliminary elimination of the applicants. If this is done to speed up the work of a Commission it is right and proper, provided that the physical examiner is not pushed beyond the possibility of doing efficient work. But if it is done to save the salaries of a few clerks, at the expense of careful work on the part of the physical examiner, it is inexcusable. There are few occupations more fatiguing than physical ex-

aming. There is no other instrument of Civil Service so likely to upset the square deal, because it is potential with as much injustice to the applicants as to the public service. It demands on the part of the examiner a sound knowledge of physical diagnosis which can be acquired only by a preparation and special training second to none engaged in the work of Civil Service. No man who brings to this work the training commensurate with its importance, and the proper respect for the high ideals of his profession, will ever dishonor Civil Service. You have no right by practising a "chill penury which represses noble (toil)" to make it impossible for him to give to the people that high grade of service which can rebound to your credit only if it is not obliged to blush for shame when scrutinized by the keen, far-seeing eyes of Aesculapins. Physical examiners must not be purchased at the bargain counter. With the advent of the Civil Service bargain, the mark-down square deal must be displayed in the window, and between them the old spoils system will be called back into a blissful earthly life everlasting, in which there will be no communion of saints or resurrection of the corpse of Civil Service.

The distinctive feature of the physical examination, which calls for the greatest tact on your part, is that it suggests to the individual an interference with his personal freedom on the part of the State, and an invasion of his personal privacy. In fact this is true of no other instrument in your technic of selection. In recent years, the individual has been bewildered by many complex schemes of social reform, all demanding recognition as social justice. Many of these were imported from another country where they abetted the brutal frenzy of an atheistic travesty on economic science, in perfecting a vast, intricate system of efficiency—the worst that man could possibly devise—applied to the worst industrial system that the world has ever known. Into the midst of this whirlpool of social panaceas, the medical profession has been drawn, and it is only natural that the individual will be suspicious of any exercise by the State of a medical function which seems to invade his personal privacy. I bring this to your attention, because it explains the vital importance of understanding the purpose of this instrument in order that it may be used wisely.

After all, the big outstanding fact concerning the more extended use of this instrument by Civil Service is that it commits us to the responsibility, which cannot be shirked, of supporting by intelligent action, the social, as well as the political, civil, and economic basis of this government. To Civil Service, this should present no difficulty, for both social justice and practical Civil Service Reform represent the moral function of government. Indeed Civil Service is in many respects a piece of social justice. Unfortunately, many of our attempted so-called social reforms are at variance with the moral principles of democratic government, for in the words of Mr. G. K. Chesterton, "they lead to the servile state," "they mean the empire of the slum."

Members of the Assembly, I have tried to the best of my ability to prepare this subject for a discussion which will not be profitless. I hope that I have at least shown that this old member of your family is still warm-blooded enough to wag the tongue of gossip. The time for discussing the advisability of extending the physical examination has already passed. Grave social and national problems, the solution of which will "stretch to aching the pia mater" of the strongest leadership that Democracy can muster, are today constantly reminding the thoughtful administrator of Civil Service that he must not be a pigmy where those old pioneers were giants. The segregation and prevention and reduction of disease, the reduction and prevention of unnecessary accidents and deaths, the reduction of long hours of labor, the forbidding of the exploitation of children for commercial gain—in expressing the importance of health and the dignity of human life, express the concrete idea that old Demos recognizes that his efficiency is dependent on the health and happiness and intelligence of his citizens. But it also expresses that most important idea, too often forgotten in a democracy, that each citizen owes in return to the government from which with millions of others he has voluntarily accepted a partnership for which he has been a suppliant, that loyalty, and that obedience to authority, which we call discipline, and without which organized effort is fruitless. That old geometry theorem, with which we struggled in our school-days, that the whole is greater than any of its parts, would have meant more to all of us had it been

taught by the teacher of civics as a fundamental truth of democratic government.

The home rule hallucination of cities and towns; the *l'état c'est moi* delusion of county politics; the outworn doctrine of state rights, so convenient as a subterfuge for perpetrating national wrong; the childishness of sectional, and other jealousies no less unworthy; the *laissez-faire* patriotism of many who ought to know better and do; the freedom of the press, freedom of speech, the freedom of the individual, in which freedom at times undergoes a metamorphosis that results in a three-headed monster with heads turned backward, and eyes that can look only down—these are witnesses, deaf perhaps but not dumb, who bear unwilling testimony to the discouraging task of cultivating a national discipline in an “unweeded garden grown to seed. Things rank and gross (in democracy) possess it merely.” Who is doing more than you to rid this garden of the weeds which choke the healthy growth of discipline and efficiency?

Among the employees of government, lies a wonderful opportunity. If you require a certain physical standard as a pledge of efficient service, you must go into the service and see that that standard is not lowered by conditions which should not exist—and I include conditions for which the employee himself is responsible. If you demand an economic return, you must be willing to pay for it in moral values. There must be a minimum wage, for wages are no longer determined by the law of supply and demand, but by a standard of living which defies the old economic law. You must eliminate the physiological fatigue which accompanies excessive hours of labor, especially in dangerous occupations, and you must see that every employee can hope for an ultimate wage that will enable him and his family to live decently. In return, you have a God-given right to demand a high grade of service and a spirit which is amenable to discipline. In such an atmosphere, the incompetent, the insubordinate, and the shirker will find no sympathy. In order to succeed, you must be inspired by those three ideals of democracy, ever boldly challenging that intellectualized materialism which measures human efficiency only by the soulless laws of physics and economics; and just as boldly challenging also that other materialism, less intellectualized perhaps, but

equally dangerous, which would change this government into a tyranny of the few over the many, or the no less endurable tyranny of the many over the few.

If you would enjoy the most perfect fulfillment of your desire to give to this government that efficiency which goes with discipline and the utilization of superior ability, you must constantly cultivate it, conserve it, and advance it, mentally, morally, physically, and socially. My old predecessor didn't even cultivate it physically, and he fell the victim of a jokester. I cannot help thinking that that old cartoonist is still hovering about ready to prove himself to be the same old David, unless we keep our heads high and our faces towards the dawn.

Original Articles.

STUDIES IN PERSONALITY AMONG FEEBLE-MINDED DELINQUENTS SEEN IN COURT.*

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AND

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WE shall not attempt on this occasion to discuss the seriousness and extent of the feeble-minded problem. We have all of us either presented or had presented to us much of the ascertainable data along these lines. But we do wish to call your especial attention to certain aspects of feeble-mindedness that have been inadequately touched upon.

In the first place, we need to know more about an individual than the mere fact that he is feeble-minded. For we have come to realize that feeble-mindedness does not necessarily imply bad social adjustment. We are told by no less authorities than Dr. Walter Fernald and Dr. George Wallace that certain feeble-minded persons get along fairly well in the community.

Our own experience has verified this; we have seen certain persons, undeniably feeble-minded, who were able to earn a living, to avoid serious social difficulties, and to adjust themselves fairly well to the conditions of normal living.

* Read before the National Conference on Social Work and the American Association for the Study of the Feeble-minded.

Furthermore, we have come to realize that the mere dubbing of an individual as feeble-minded does not furnish an adequate explanation for his criminal behavior.

We need to know more about those elements of personality that, on the one hand speak for successful adjustment, and on the other hand, just as surely speak for bad adjustment, if we are to undertake intelligently any well-planned scheme of procedure.

The problem would indeed be simple could we reduce it to the mere estimate—by means of mental tests—of an individual's degree of intelligence, and then his commitment in all cases to an institution.

But the adequate institutional care of all feeble-minded persons, even if desirable, is a long way off. No matter how we feel about it, the great majority of the feeble-minded are having to be handled out in the community.

Some are already a serious social menace; others give promise of becoming such; while still others will probably never give any difficulty, but being content and satisfied with their lot in life, will find some niche—however small—into which they can fit themselves, and scarcely create a ripple in the stream of life's activities.

It has seemed that a better understanding of the individual differences presented by feeble-minded personalities whose behavior varies so widely would be distinctly worth while. As a practical consideration, the whole question of the prevention of crime is intimately related to such an understanding of the predictabilities in any given case.

This study does not pretend in any sense to deal adequately with the situation: it does aim to call attention to certain other worth while considerations in the case of a feeble-minded delinquent in court.

For the purpose of this study the case records of 100 feeble-minded individuals were carefully gone over, with no other requirement for selection than that enough information bearing upon the career of each person should be at hand to determine the general character of her behavior—whether tending to conform to the social standards of the community or not; also that there should be enough information bearing upon each individual's personality to give a general picture of her abilities and disabilities.

These were all adult women, ranging in age from 17 years to 55 years—as the following table will show:

TABLE I.
SHOWING CHRONOLOGICAL AGE OF 100 FEEBLE-MINDED DELINQUENTS.

AGE	17-20 YRS.	20-30 YRS.	30-40 YRS.	40-50 YRS.	50 YRS. +	TOTALS
No. of cases	7	30	39	18	6	100
Per cent. . .	7%	30%	39%	18%	6%	100%

The greatest incidence is in the decade between 30 and 40 years, while more than two-thirds of our cases were between 20 and 40 years of age.

The mental level of these persons, as determined by means of the Yerkes-Bridges Point Scale and Goddard Revision of the Binet Scale is indicated in the following table:

TABLE II.
SHOWING MENTAL LEVEL OF 100 FEEBLE-MINDED DELINQUENTS

MENTAL AGE	7-8 YRS.	8-9 YRS.	9-10 YRS.	10-11 YRS.	11-12 YRS.	TOTALS
No. cases	1	11	42	26	20	100
Per cent. . .	1%	11%	42%	26%	20%	100%

To be sure, the diagnosis of feeble-mindedness in these cases did not rest alone upon the determination by means of a measuring scale of their degree of intelligence. In the first place, a thorough-going psychiatric study of each case was undertaken, in order to rule out the possibility of a psychosis or deterioration. In addition to the psychometric scales above referred to, Healy's supplementary tests were used; also tests of school knowledge and general information were given. From this and the history obtained, we came to our final diagnosis of feeble-mindedness.

As one read over these case histories, one was impressed with the marked differences in behavior manifested by these different individuals.

After leaving school, some secured employment, worked steadily and lived fairly quiet and sheltered lives; avoided alcohol, sexual irregularities, bad associates; appeared ambitious, were willing to accept authority, and to be guided by advice, were industrious, and seemed to have gotten into court more as a matter of chance than as a logical result of the life they had lived. In their reactions to the court's treatment, they profited by the mistakes they had made.

Others from the very start showed strong determiners for a criminal career. They either

would not work at all, or never remained at any place or form of work but a very short while; at an early age began to form vicious habits; established the very lowest companionships; became addicted to alcohol and drugs; were especially promiscuous sexually; seemed impervious to any advice and resistant to any form of authority; often arrested—as many as thirty-five to fifty times—they continue on repeating their offenses over and over, apparently unable to modify their conduct in keeping with the standards of the more normal living members of the community.

The following tables give only a very limited picture of the extreme maladjustment and abnormal behavior of some of these persons.

TABLE III.

SHOWING INDUSTRIAL EFFICIENCY OF 100 FEEBLE-MINDED DELINQUENTS.

INDUSTRIAL EFFICIENCY	STEADILY EMPLOYED	CHANGE OFTEN	DO NOT WORK	HOUSE WORK AT HOME	TOTAL
No. of cases	16	38	35	11	100
Per cent. . .	16%	38%	35%	11%	100%

Sixteen per cent. were undoubtedly self-supporting; kept steadily employed and apparently gave satisfaction.

Thirty-eight per cent., while more or less self-supporting, changed positions frequently, worked irregularly, and did not give satisfaction where employed.

Thirty-five per cent. never worked at all; while 11% did housework at home.

The use of alcohol by feeble-minded persons affects seriously their general behavior in other regards. It seems as if such inhibitions as have been built up tending towards normal behavior are more quickly disorganized by alcohol, in the feeble-minded person than in the normal.

TABLE IV.

SHOWING PERCENTAGE OF INDIVIDUALS USING ALCOHOL AND DRUGS AMONG A GROUP OF 100 FEEBLE-MINDED DELINQUENTS.

Alcohol	82
Drugs	5
No evidence of either	18

Eighty-two per cent. used alcohol; 5% used drugs as well as alcohol; while 18% did not use either.

Almost invariably did one find that along with the use of alcohol, there also went sexual irregularities. In fact a close correlation seemed to exist, as the following table will indicate:

TABLE V.

SHOWING HABITS AS TO SEXUAL RELATIONS AMONG 100 FEEBLE-MINDED DELINQUENTS.

SEX RELATIONS	ABSENT	RESTRICTED TO MARRIAGE	MILDLY WAYWARD	ESPECIALLY PROMISCUOUS	TOTAL
No. of cases	9	10	27	54	100
Per cent. . .	9%	10%	27%	54%	100%

In 9% sexual relations had been absent; in 10% all evidences seemed to indicate that they had been restricted to marriage; while 81% were either wayward or sexually promiscuous. In short, 19% might be considered moral, while 81% were undoubtedly immoral women.

The following table indicates the frequency with which these individuals came into court.

TABLE VI.

SHOWING FREQUENCY OF ARRESTS OF 100 FEEBLE-MINDED DELINQUENTS.

FREQUENCY OF OFFENSE	FIRST OFFENDERS	SECOND OFFENDERS	RECIDIVISTS	TOTAL
No. of cases....	20	12	68	100
Per cent.	20%	12%	68%	100%

Twenty per cent. of these cases were first offenders; 80% were repeaters. Among the recidivist group long records, such as 25 to 50 arrests, were common.

We divided these 100 cases into four groups—those whose behavior indicated good social adjustment (this should be taken in the very broadest sense); those whose behavior indicated fair social adjustment; those whose behavior indicated poor social adjustment; and finally those whose behavior indicated bad social adjustment. Our judgments were based upon the entire careers as pictured in the life histories, together with the court record.

The following table shows the character of behavior, and the general trend of the careers of these 100 cases:

TABLE VII.

SHOWING CHARACTER OF SOCIAL ADJUSTMENT OF 100 FEEBLE-MINDED DELINQUENTS.

Good social adjustment	4
Fair social adjustment	15
Poor social adjustment	52
Bad social adjustment	29
Total number of cases	100

Nineteen per cent. showed good or fair social adjustment (as said before, this must not be interpreted too literally—the fact that they were all feeble-minded and all court cases should be borne in mind).

Eighty-one per cent. showed poor or had social adjustment.

Now, our purpose so far has been to show the perfectly obvious fact that though all of these

persons were feeble-minded, they still varied greatly in their mode of behavior and in their adaptation to the outside world.

Surely no one would be so unwise as to claim that within the constitutional makeup of these individuals could be found the sole explanation of their differences in behavior.

To overlook the importance of innumerable social and environmental factors as determiners for behavior would indeed be foolish. So complicated is the whole matter of conduct that it is difficult—if not impossible—to attach to each factor its proper value.

In this particular instance we hope merely to make clear a perfectly obvious relationship that exists between the traits of personality possessed by a feeble-minded individual and the character of his behavior.

The main divisions under which the various traits are arranged were borrowed from Wells: "The Systematic Observation of the Personality," etc.—"They are not intended to be rigid, nor could they be made so. . . No single characteristic can be absolutely separated from other characteristics, any more than a single act is the product of a single motive." There is, of course, much overlapping in these traits.

Something of the relationship that personality traits bear to conduct is exhibited in the following table:

TABLE VIII.

SHOWING RELATIONSHIP OF PERSONALITY TO CHARACTER OF BEHAVIOR.

	GOOD	FAIR	POOR	BAD
<i>Output of energy</i>				
Active	4	14	29	12
Lazy	0	1	23	17
Good manual dexterity	4	12	7	4
Poor manual dexterity	0	3	45	25
<i>Self-assertion</i>				
Suggestible	3	11	26	9
Not suggestible	1	4	26	20
Ambitious	4	12	1	1
Not ambitious	0	3	51	28
Resists discouragement	2	7	22	12
Does not resist discouragement	2	8	30	17
Combative	0	0	32	20
Not combative	4	15	20	9
<i>Habits of work</i>				
Persevering	4	12	2	1
Capricious	0	3	50	28
Indolent	0	1	46	28
Industrious	4	14	6	1
Prompt	4	14	6	1
Procrastinating	0	1	46	28
<i>Moral sphere</i>				
Sincere	4	15	6	2
Insincere	0	0	46	27
Conscientious	4	13	7	2
Not conscientious	0	0	45	27
Honest	3	12	6	2
Dishonest	0	0	46	27

	GOOD	FAIR	POOR	BAD
Truthful	4	12	6	2
Untruthful	0	3	46	27
<i>Adaptability</i>				
Coöperative	4	15	11	2
Not coöperative	0	0	41	27
Accepts authority	4	14	11	2
Does not accept authority ..	0	1	41	27
Guided by advice	1	14	0	0
Not guided by advice	0	1	52	29
<i>Mood</i>				
Emotional	2	8	42	14
Not emotional	2	7	10	15
Earnest	4	13	13	2
Frivolous	0	2	39	27
Anger easily aroused	2	3	42	20
Anger not easily aroused ..	2	11	10	9
<i>Attitude towards self</i>				
Self-pity	0	8	18	3
Self-justification	1	4	46	27
<i>Attitude towards others</i>				
Sympathetic	3	14	4	5
Not sympathetic	1	1	38	21
Fault-finding	0	1	31	13
Stubborn	0	0	41	27
Sullen	0	0	12	8
Sensitive	2	8	42	13
Not sensitive	2	7	10	16
Trustful	4	14	5	2
Suspicious	0	1	47	27
Selfish	0	5	47	27
Not selfish	3	10	5	2
Considerate	4	10	5	2
Inconsiderate	0	5	47	27
Appreciative	4	10	5	2
Not appreciative	0	5	47	27
Respectful	4	15	15	11
<i>Attitude towards reality</i>				
Acknowledges mistakes	4	15	6	2
Does not acknowledge mistakes	0	0	46	27

NOTE.—Nothing like a complete arrangement of traits is aimed at in the above table, inasmuch as our data as contained in histories were inadequate for such. For instance, under the heading "Attitude towards Reality," we have only two characteristics: "Acknowledged mistakes" and "Does not acknowledge mistakes."

On the basis of our four main headings, we find that those with good social adjustment (4%) showed good manual dexterity, were active, ambitious and not combative. In their work they were persevering and industrious; were usually sincere, conscientious, honest and truthful; were coöperative, accepted authority, and showed a willingness to be guided by advice; were earnest, kind and sympathetic, respectful, trustful, considerate of others, appreciative, acknowledged mistakes, and made an earnest attempt to profit by them. In some instances, these individuals were suggestible, sensitive, emotional and easily discouraged; but their principal difficulty was their arrested intelligence. All of these individuals worked steadily; none were alcoholic; none could have been considered immoral women; and none showed a tendency to a repetition of their offense.

Those with fair social adjustment showed the majority of the above characteristics, but with

less frequency than found in those with good adjustment; with a certain intermingling of undesirable characteristics—lack of ambition, indolence, untruthfulness, frivolity, capriciousness, self-pity, lack of appreciation.

The majority of these individuals were steadily employed, though some changed positions very often; nine of the fifteen cases had had illegitimate sexual relations, though none was sexually promiscuous. Seven of these cases used alcohol at irregular intervals. There had been no tendency in these cases to a repetition of arrest.

Those with poor adjustment showed a higher frequency of laziness, poor manual dexterity, lack of ambition, anger easily aroused, and combativeness. In their work they were more inclined to be indolent and procrastinating; showed a tendency to be dishonest and untruthful; were less agreeable to authority; were inclined to justify themselves and their acts; and showed little tendency to be guided by advice; were more often inconsiderate of others, stubborn, suspicious, lacking in appreciation, and rarely were willing to acknowledge their mistakes and make an honest effort to do better. None of these individuals was steadily employed: the majority changed positions frequently, not remaining long at any place, and in some instances did not work at all. Forty-nine out of 52 cases were alcoholic; and three were drug users. Forty-five out of 52 cases were either sexually wayward or especially promiscuous. Practically all of these persons showed a tendency to a repetition of their offenses—some to a great number of times.

Finally, those with bad social adjustment showed the above undesirable characteristics in a more marked degree and with greater frequency than exhibited by those with poor social adjustment. The majority never worked at all—gaining their living by simpler methods. All used either alcohol or drugs; 27 out of the 29 cases were immoral women; and all were repeated offenders, upon whom the court had tried every measure for proper readjustment at its disposal, and with no apparent success.

Looked at from another point of view, we find three main types of personality among these 100 cases. First, the feeble-minded person, in whom the intellectual defect is the outstanding factor, and little difficulties of personality are noticeable. This group was very small, and the possibilities for adjustment

seemed limited by their intellectual ability and industrial capacity; where these were of sufficient strength, outside supervision was successful.

Second, the unstable, emotional group, who, in addition to intellectual defect, suffer from a marked temperamental instability; are easily discouraged, go to pieces in emergencies, are very sensitive, quick-tempered, highly emotional, and lacking in inhibitions. This group was larger than the first, and presented greater difficulties in adjustment. Alcohol and sexual irregularities were found to be frequent. Something, however, can be done in the way of supervision in a few of these cases.

The third group presents very grave difficulties of personality; they are egoistic, selfish, inconsiderate of others, suspicious, indolent, unappreciative, unsympathetic, not coöperative; are unwilling to acknowledge mistakes; resist authority, and are not guided by advice. There is such an apparent shallowness in the moral feelings of these individuals that they exhibit no desire to do better, or to profit by their mistakes. Repeated arrests were the usual thing. Satisfactory supervision of these persons outside of an institution is impossible.

SUMMARY.

The object of this paper was to call attention to the value of certain facts other than the mere diagnosis of feeble-mindedness that are distinctly worth while in the consideration of the case of a feeble-minded delinquent in court.

For this purpose 100 cases were chosen, with no other requirement for selection than that enough information bearing upon the career of each person should be at hand to determine the general character of her behavior,—whether tending to conform to the social standards of the community or not; also that there should be enough information bearing upon each individual's personality to give a general picture of her abilities and disabilities.

These were all adult women, ranging in age from 17 to 55 years. The mental age of each of these persons was determined by means of the Yerkes-Bridges Point Scale and Goddard's Revision of the Binet Scale. The diagnosis of feeble-mindedness was arrived at by the usual methods—a psychiatric examination to eliminate psychoses, deterioration and such; a psychological examination, including the two scales above referred to, together with Healy's sup-

plementary tests, the application of tests for school knowledge and general information; and, finally, the gathering of a life history bearing upon the careers of these individuals.

As one read over these case histories one was impressed with the evidence of marked differences in behavior manifested by these different persons. Some had shown throughout life fairly good social adjustment (taking into consideration the fact that they were all feeble-minded). Others from the very start showed strong determiners for criminal careers, and manifested serious social maladjustment.

Sixteen per cent. were undoubtedly self-supporting, steadily employed, and apparently gave satisfaction where they worked. Thirty-eight per cent., while more or less self-supporting, changed positions frequently, and worked irregularly. Thirty-five per cent. never worked at all; while 11% did housework at home.

Eighteen per cent. never used alcohol or drugs; 82% used alcohol; 5% used drugs as well as alcohol.

Nineteen per cent. were moral, while 81% were undoubtedly immoral women.

Twenty per cent. were first offenders, 80% were repeaters.

In short, we have a group of about 19 individuals who were classed as having shown good or fair social adjustment, while about 81 individuals were considered to have shown poor or bad social adjustment.

The type of behavior manifested by these individuals seemed to correlate less with their age and mental level than with certain fundamental trends of personality.

Those with good or fair social adjustment possessed characteristics—personality traits—that, despite the existence of feeble-mindedness, enabled them to adapt themselves fairly well to the conditions of normal living.

Those with poor or bad social adjustment possessed personality traits that early gave promise of grave difficulties in behavior, and must inevitably have led to complete failure in adjustment.

We do not want to be understood as recommending the handling of feeble-minded girls out in the community; but we do want to call attention to the fact that some feeble-minded persons seem to get along fairly well under outside supervision, and do avoid serious social difficulties, and therefore are not necessarily—because they are feeble-minded—vicious, incor-

rigible and irresponsible. We do want to emphasize the fact that the majority, however, of feeble-minded delinquents seen in court are institutional cases, and are incapable of measuring up to the social standards of the community in which they live.

We want to emphasize strongly the fact that a well-rounded, thorough-going study of the possibilities of each individual delinquent, though he be feeble-minded, is necessary for an adequate adjustment of his case.



Clinical Department.

FRACTURE OF THE LONG BONES: A CLINICAL STUDY.*

BY FRANCIS REDER, M.D., ST. LOUIS, MO.

THE clinical deductions chronicled in this paper are gleaned from a case that in every aspect of bone surgery presented a very interesting picture. Before stating the record of events, it must be said, in justice to the surgeons who at different times exercised their skill in the hope of attaining a successful issue, that they were fully cognizant of the serious task which was confronting them.

On June 2, 1912, a female aged 24 years, in excellent health and splendid physical condition, was injured in a street-car collision. She was taken to the City Hospital. Examination at that institution disclosed a simple oblique fracture of the right femur about three inches below the great trochanter, and a compound fracture of the left tibia and fibula. The mandible at both angles was also fractured. Under the direct care of the visiting surgeon, the fracture of the right femur was reduced and the limb suspended in a Hodgen splint. This splint insured both traction and counter-traction. The fracture of the left tibia and fibula was reduced and the leg placed in a wire splint. Three weeks later the satisfactory progress of the wound permitted the application of a plaster-of-Paris cast to the left leg.

August 2, eight weeks after the accident, the Hodgen splint was discarded and a plaster-of-Paris cast substituted. August 9 the patient left the hospital and went home.

October 1, four months after the accident,

* Presented at the meeting of the Southern Surgical Association, St. Augustine, Fla., Dec. 18, 19 and 20, 1917.

the casts were removed from the right thigh and the left leg. Upon examination it was found that there was union neither of the femur nor of the tibia. The fibula was united. A consultation of two surgeons and an orthopedist was called. An open operation was decided upon. This was performed October 26, 1912. The operation consisted in refreshing the bone ends of the broken femur and securing apposition with silver wire. The wound became infected. This infective process extended over several months and severely taxed the health of the patient. The healing of the wounds left the bones ununited.

Another consultation with two different surgeons was called. After an examination, it was decided to break up the fibrous union that had taken place in the femoral fracture and place the limb in wooden splints, with extension. This was done March 8, 1913, in the patient's home. The splints were removed nine weeks later. No union.

May 19, 1913, at the Lutheran Hospital, a resection of femoral bone ends was undertaken, and the limbs immobilized in a plaster-of-Paris cast with strong abduction. Twelve weeks later no union had taken place. The patient was sent home. Consulting another surgeon, the patient was advised to go to Washington University Hospital. At this institution she was operated on October 13, 1913, sixteen months after receiving the injury. A graft from the right tibia was transplanted into the ununited left tibia. The leg was encased in a plaster-of-Paris cast. December 29, 1913 (ten weeks later) it was removed and union was found to have taken place. A cast was reapplied.

January 14, 1914, a graft from the right tibia was transplanted into the ununited right femur. The graft was of the inlay variety.

At the time of the operation no undue attempt was made to correct the deformity. The surgeon's sole aim was to excite an osteogenetic force sufficient to accomplish a bony union. This accomplished, it was reasoned that the correction of the deformity could be brought about by a subsequent operation. Inasmuch as the adductor group of muscles was very much contracted at the time of the operation, this was a logical procedure, as it would have been impossible, even with the best of fixation, to prevent a possible accident to the graft. This was clearly demonstrated to me in the subse-

quent course of the case. Furthermore, the surgeon, being alert to the defective osteogenetic power of the bone ends, decided not to force the limb into any absolute fixation, but simply to allow it to rest in a comfortable position so that no compression or constriction could exert any inhibitive influence on the callus formation. At times the contractions were sufficiently violent to endanger the graft. The patient begged for slight traction on her limb that the muscle spasms might be to some extent controlled. Traction of about ten pounds was applied. A certain amount of relief was thereby obtained.

When she left the hospital, on March 1, 1914, six weeks later, union with a deformity greater than the original had taken place. May 11, 1914, after being at home a little over nine weeks, she returned to the Washington University Hospital, where the cast from her left leg was removed. The union of the tibia was found firm, but there was a marked posterior bowing. The patient remained at the hospital seven weeks for after-treatment, and was then sent home.

September 1, the patient returned to the hospital for treatment for her stiffened knee and ankle joints and x-ray examinations. She remained three weeks. From Sept. 21, 1914, to July, 1915, the patient was at home. There she was subjected to massage and motion exercises in a most assiduous manner.

July 15, 1915, she returned to Washington University Hospital to have her knees and ankle joints, which were partly ankylosed, manipulated under anesthesia. She remained 15 days. From June 2, 1912, to July 15, 1915, the patient had been subjected to 15 ether, 5 gas-oxygen anesthetics. The time from August, 1915, to February, 1917, was spent by the patient at home, applying the various motion exercises she had learned while in the hospital and having her limbs massaged. She made every endeavor to learn to walk, but did not seem to be able to make any progress, and, as she expressed herself, her muscles absolutely refused to act right. She complained of much pain in her back, principally the lumbar region. The fracture sites, too, were at times very painful.

February 7, 1917, I was asked to interest myself in her behalf. The patient stated that measures which in the past were helpful had

now reached their limitations. She was unable to improve on her present state of walking and the future was beginning to grow dark for her. It was a request that could not be denied. The physical examination revealed the patient

good health. With this expression there was linked an asset, very essential to the sustenance of hope,—willingness and fortitude. When the patient was asked to walk, it was with the greatest effort that her lower extremities were



FIG. 1.—Angulation of right femur with firm union following inlay bone graft for ununited fracture. There is about $3\frac{1}{2}$ inches shortening. The valgoid condition of the right leg is the resultant weakening caused by excision of bone used as grafts for right femur and left leg.



FIG. 2.—Correction of angulation in right femur. Firm union.

in a fairly good condition. This was remarkable when the experience of the past four and a half years of her life was considered. From the want of proper exercise a general anemia was contracted, and this was very apparent. However, she expressed herself as feeling in



FIG. 3.—Backward bowing of left tibia, with firm union following inlay bone graft for ununited fracture.



FIG. 4.—Correction of backward bowing of left tibia. Firm union. An excision of 3 inches of the left femur was made to equalize it with its fellow and to relieve the pelvic obliquity and the lateral curvature of the spine.

placed in motion. The contortions of her body resembled those of a tabetic. A heel three inches in height was necessary on her right shoe, while her left leg had to be supported by a brace.

Examination of the right lower extremity re-

vealed a shortening of three and one-half inches, with marked inward rotation. The knee and ankle joints gave about one-fourth normal motion. In the hip joint motion was quite normal. A deformity in upper third of thigh, such as would result from angulation and outward bowing of the femur, was apparent. The amount of callus formation about the fracture site was very large. The union was firm. The group of adductor muscles was contracted. On the outer side of the thigh the skin was adherent to the bone, a marked depression interrupting the normal contour.

Examination of the left leg revealed an extensive bowing of the tibia backward. Callus formation over the site of fracture, which was in the middle third, was rather extensive. The union was firm. From the cicatrix in the middle third of the leg it was evident that there was much destruction of the soft tissues. The foot was in a drop position, with an extremely limited motion of the ankle joint. The knee joint gave about one-third normal motion. Motion of the hip joint was normal.

Examination of the pelvis elicited a marked obliquity, compensatory to the shortening of the right leg. The spine gave evidence of lateral curving to the left. The lumbar muscles on the left side of the spinal column were prominent.

Here was a terminal condition which, after a period of four and one-half years in a patient who had been subjected to the skill of very competent surgeons, proved most disappointing. Everything that was good and effective in both the closed and the open methods of treatment was employed and yet the end-results were poor.

The condition of the patient presented many problems, and it became a question with me to what extent they could be worked out. Why this patient did not have a primary union of the right femur must be explained upon the ground that after the broken bone ends had been brought in good alignment, the proper fixation of the fracture, through some cause or other, was not maintained. In the left tibial fracture, a septic process interfered with union. Later, when the right femur was subjected to the open method of treatment, it was also a septic process which prevented union. Seven months later, when the bone ends of the ununited femur were resected and no union re-

sulted, it must be inferred that the osteogenetic forces were defective or that the fixation of the limb was inefficient, permitting a material amount of movement to take place between the fragments sufficient to interfere with the process of consolidation.

The introduction of the bone graft clearly demonstrated that it was a direct assistance to osteogenesis, both the fractured femur and tibia giving evidence by promptly uniting.

The success of the bone graft lends an interesting chapter in this case. Almost two years after failure of union the introduction of an autogenous bone graft caused the bone cells to respond to the stresses to which the part was subjected. Consolidation took place. That the osteogenetic forces were weak and that the callus produced was not sufficiently strong in its consolidation to permit weight-bearing became apparent through the resulting deformity in both femur and tibia. It would appear that five months (femur) and seven months (tibia) might be sufficient time for the consolidation to support the body weight without disaster. There is no definite time when it can be said that a bone, whose continuity had been re-established through the stimulus of a bone graft, will be sufficiently strong to bear the body weight without dire consequences. It is fairly safe, however, to assume that a grafted bone will require at least three times as long for firm consolidation as a broken bone which has responded to primary union.

Having fully acquainted myself with the clinical manifestations presented in this case, a method of procedure was decided upon. From the skiagraph it became evident that the three and one-half inches shortening of the right femur was permanent, *i.e.*, an attempt to lengthen the limb through operative means would be futile and that the correction of the angulation would not add materially to the length of the bone. To equalize the difference in the length of the limbs, it was decided to excise three inches of the left femur. With this procedure it was expected to restore to a certain extent the existing obliquity of the pelvis and to aid in the obliteration of the lateral lumbar curvature. Furthermore, it was expected that this procedure would more readily overcome the unequal strain that had been thrown upon the joints and ligaments through the faulty transmission of the body weight upon

the lower limbs. The correction of the right femur was brought about by removing with a chisel a wedge from the convex side of the angulated bone. This was made imperative because of the hard and extensive callus formation. The callus was found uniform in its density throughout. A piece of the graft, about one inch long by one-half inch in width, having the appearance and characteristics of a sequestrum, was removed. Before the femur could be brought in proper alignment, it became necessary to chisel through its entire thickness. Recalling the various pathological stages this bone had passed through and being fearful that a latent septic condition might be stimulated into activity, the bone and soft tissues were subjected to the least amount of traumatism possible. It is well to remember that organisms remain quiescent for a long time in a fracture which has united firmly and apparently normally after an infection, and that a subsequent trauma or the introduction of foreign matter, such as plates and screws, may stimulate them into active growth and so endanger a junction.

To guard against any displacement the bone ends were secured with a bronze wire. The wire was given preference over a Lane plate because of the fear of inciting a possible infection, and furthermore, because experience has proven that a plate can produce actual delay in efficient osseous union. Inasmuch as it could be assumed that in this extensive callus formation the osteogenetic force was deficient the contraindication to the plate became the more apparent.

Blood bathed the exposed bone freely. Closure was made without drainage. This was done under the assumption that the presence of blood about the traumatized bone might be of direct assistance to osteogenesis. Further to facilitate the bone production, the thigh was subjected to a congestive treatment—the so-called damming, originated by Thomas, which has served me well in several cases of delayed union. The limb was corded with a rubber tube applied above and below the fracture, sufficiently tight to produce considerable swelling and stasis for several hours a day. A Liston splint reaching to the axilla was applied to the extremity. The fixation seemed to be satisfactory. As long as the patient was under the influence of an anesthetic the group of ad-

ductor muscles, which prior to the anesthesia were markedly contracted, remained relaxed, and the splint did not betray its shortcomings. However, after the effect of the anesthetic had subsided the reflex contraction of the muscles manifested itself, disturbing the fracture and causing great pain. A Buck's extension was applied in the hope that gentle traction would overcome these muscle contractions. No difference, however, could be noted. Suspecting that the damming could excite or aggravate the spasm, it was discontinued. It was, however, found that cording of the thigh lessened their severity and the reapplication of the rubber tubing was resorted to for even a longer period of time.

After four weeks, during which time the patient received an opiate almost daily on account of the pain caused by the muscle spasms, it was decided to encase the limb in a plaster-of-Paris cast in the hope of getting more efficient support through a firmer fixation. The cast enveloped the lower part of the trunk and extended up to the thorax. It encased the whole extremity, including the foot.

The change seemed to be conducive of some good, and although the spasms did not subside entirely, they became less severe and of shorter duration, with longer intermissions. On account of atrophic changes in the limb, repeated applications of casts became necessary. Before a new cast was applied the limb was not encumbered with any form of splints for two days, excepting a sandbag support. During this time the whole extremity was bathed and massaged, and the articulations subjected to passive motion. It was interesting to note how quickly the limb changed from its blanched color to a livid one after the cast was removed, giving distinct expression of how restricted the blood supply must have been to the parts. Such a picture as this strengthens the belief that a plaster-of-Paris cast is not infrequently the cause of a delayed union, but may be a potent factor in non-union.

The application of a plaster-of-Paris cast to a broken bone must be a studied procedure. Its shortcomings must be well understood and its indiscriminate use should be discouraged. A plaster cast must not be applied to be constrictive or to compress the limb, but must be restrictive only, fitting closely to its actual somewhat increased circumference and forbid-

ding further increase of this circumference by muscular effort. At the end of three months the plaster cast was discontinued and a wooden support of posterior and lateral splints was substituted. The muscle spasms had not entirely ceased. At times they were very severe. However, the contractions became less frequent, their favorite time being in the morning, in the evening, or at midnight. During the first week in September, seven months after operation, a test of the limb revealed a firm union and all splints were discarded. Mild muscle spasms still supervened. The patient was not yet permitted to leave her bed.

The operative problem of the left femur presented difficulties entirely different from the right. To equalize its length with its fellow, an excision of three inches was to be made. Could this excision be made without interfering to an appreciable extent with the function of the limb? Would it be possible for the muscles to contract so as to have coördinative utility and be able to accommodate their sense to a degree that would insure an almost normal muscle balance? Taking into consideration that this patient was fully matured, these questions possessed a weighty import. Inasmuch as fractures of the femoral shaft resulting in two inches shortening terminated in satisfactory function, it was reasoned that an additional inch would not prove a serious menace. The excision was made at the time when the deformity in the right femur was corrected (February 19), and the site chosen was that presenting the best mechanical advantage. This seemed to be in the middle third immediately above the nutrient foramen. With a Gigli saw the excision was accomplished with ease. When the bone ends were approximated the muscle structure sagged about the bone in large masses. It was not a promising picture. To retain the bone ends in apposition and prevent a possible displacement, a graft taken from the excised bone was pushed into the medullary canal of the femur. A parting of the bone ends was anticipated by introducing a bronze wire through the upper and lower fragment. This bronze wire was tied in a knot as an ordinary piece of twine. At the conclusion of the operation everything appeared satisfactory and the limb was immobilized with a Liston splint. Four hours after the effects of the anesthetic had passed off, there occurred violent muscle con-

tractions. They were irregularly intermittent and shook the limb. It was necessary to administer an opiate to relieve both muscle spasms and the pain every 10 to 14 hours. On the fifth day after the operation a roentgen photograph revealed that the intramedullary plug was forced out, the wire had given way at the knot and was now an elongated loop and the bone ends had parted to the extent of about two and one-half inches. The damage which the violent muscle contractions had wrought was a great surprise; inasmuch as they were not abating in their severity, the only alternative was the application of a Lane plate.

After removing the wire and the intramedullary plug which was found lying outside of the medullary cavity, a heavy plate with six holes was placed without difficulty. The junction was found strong after four screws, two in the upper and two in the lower fragment, had been introduced; for this reason the remaining two screws were omitted. The limb was encased in a plaster-of-Paris cast in an abducted position. This cast, like the one on the right limb, included the foot and extended up to the thorax. To anticipate muscle spasms after the effects of the anesthetic had passed off, an opiate was administered. As long as this patient was under the influence of an opiate she was free from these painful contractions. Upon withdrawal of the drug the muscles, principally the adductor group, would contract in a violent manner, causing great pain and endangering the junction.

On the 18th day after the plate had been introduced the patient informed me that during the night the muscular contractions had been so violent that she feared the plate had been broken, as she distinctly heard a snap coming from that part of her leg. An x-ray picture taken immediately revealed the plate not broken but the screws in the upper portion forced. They could be plainly seen protruding above the plate. The alignment of the bone was only fair, the lower fragment having been drawn inward, causing a slight angulation at the junction.

The condition was disheartening. Again to open the wound and correct the existing deformity by reapplying the plate would have been a justifiable procedure. However, it was reasoned that the existing condition did not warrant it. Manipulation of the limb gave as-

surance that the plate was still fixing the bone ends quite securely. It was therefore decided to place both limbs upon a Rainey frame, and when the time came for removing the plate, then to make such corrections of the deformity as were deemed advisable.

June 18 the plate was removed, 114 days after it was introduced. The condition found was about the same as revealed by the x-ray picture taken at the time when the plate was supposed to have been broken. The screws in the upper fragment were out of their holes. The screws in the lower fragment were loose and could be removed with ease. Angulation of the bone was quite marked, the lower fragment having been pulled perceptibly inward. The Rainey frame undoubtedly was of great service in preventing a greater deformity. The behavior of this fracture clearly demonstrated to me how the non-union in the right femur resulted during the early measures that were instituted.

Although the position of the bone ends was fairly good, it was found that after nearly four months the callus was soft and no difficulty was experienced in readjusting the bone into the proper anatomical line. It is a rule in fractures that the worse the position of the bones the longer will the callus take to consolidate. In this case, however, although the apposition was not good, the limited amount and soft condition of the callus cannot be ascribed wholly to the poor apposition, but must be attributed to some extent to the anemic state of the patient. The limb was again encased in a plaster-of-Paris cast and placed in a Rainey frame. Muscular contraction became more mild, and only occasionally was there a marked exacerbation.

July 20, five months after operation, at 2.30 p.m., a muscular spasm of great severity was experienced which lasted three hours. This was the last of the severe contractions. An opiate was now only occasionally necessary. The inference could readily be made that this patient had become a habitué, having received almost daily doses for three months and tri-weekly doses for two months; however, it was with comparative ease that the discontinuance of the drug was effected. This was indeed remarkable. During the last two months of her stay in the hospital no opiates were administered. The muscular contractions continued for seven months, only during the last two

months were they so mild that no notice was taken of them. Antispastic remedies and quite a few mechanical measures to overcome these muscular spasms that so seriously threatened a good end-result did not influence the condition. Morphin was the only remedy that gave relief. It was hoped that the muscles would give up the struggle and acquiesce, as had been my experience in most cases of fracture where such contractions were severe enough to attract attention.

In this case, however, the phenomenon presented itself in such an unusual form that a central lesion was suspected. A neurologist, however, assured me that no such lesion was present. Inasmuch as temperature and pulse remained within a range that would preclude any pathological changes in or about the fracture during the process of consolidation, the persistency of these muscular spasms must be ascribed to an asthenic condition of the patient, inviting a neurological inanition, where a trauma so agitated the nerve centers that the coördinative powers of the muscular apparatus gave evidence of disconcerted action, and continued to do so until more favorable nutritive changes had taken place in the system. At no time did the temperature rise above 100° nor the pulse rate exceed 90, excepting on August 2, when the temperature registered 102° with a pulse rate of 118. The sudden change in the temperature and pulse picture was caused by an acute attack of appendicitis. The appendix was removed the following day. It showed evidence of marked thrombotic changes. Five days later the temperature and pulse were again within the normal range.

September 4, when the plaster encasement was removed from the left limb, muscle atrophy was marked. The contour of the thigh, however, was good and the firmness of the muscles presaged a good functional result. In this I was not disappointed as the patient is not experiencing the difficulty in walking that had been expected. The greatest hindrance to overcome now is the partly ankylosed condition of both knee and ankle joints. These articulations, although close attention was given them, suffered much during five years of confinement.

How nearly these articulations can be restored to their normal action is problematic. At present it is a serious handicap to the patient's

walking exercises. Too much stress cannot be placed upon the care of the articulations in fracture of the long bones. It does not matter much whether the fracture is in the immediate vicinity of the joint or not. The neglect of extending the needed attention to a joint of a limb that has been immobilized is almost a surgical sin. No matter how serious the bone injury there is always an opportunity at some time when the proper consideration given a joint, may avert much that is aggravating and frequently very troublesome. Especially is this true in fractures involving the long bones of the lower extremities.

The remaining deformity that necessitated correction was the bowing backward of the left tibia. The amount of callus about the middle third of the tibia, the site of the fracture, was abundant. Consolidation was strong. It will be remembered this was a compound fracture, the infective process covering nearly three months. A non-union resulted. This ununited fracture was subsequently stimulated into union with the assistance of a bone graft taken from the right tibia. The deformity was undoubtedly caused by too early weight-bearing, when the callus was the seat of active changes and consolidation was far from complete.

In correcting this deformity, which was undertaken the same time the right and the left femur were operated on, an oblique osteotomy was done through the callus between the original fragments of the shaft. The tibia was not severed in its entirety, enough of the bone being kept intact to act as a splint for fixation to prevent any overriding and subsequent shortening. After the chisel had penetrated the tibia to about four-fifths of its thickness the lower fragment was forced backward, the action being similar to the correction of a green-stick fracture, until the posterior bowing had been overcome. The result of this manipulation left a gap about an inch wide upon the anterior aspect of the tibia. This gap was allowed to fill with blood and the skin closed over it. No trace of the bone graft was found. With posterior and lateral splints, the leg was securely fixed and bandaged to the Liston splint, which was used to immobilize the thigh. Subsequently, when the Liston splint had to be changed on account of the muscular contractions, the entire extremity was encased in a plaster-of-Paris cast.

The anatomical line of the tibial shaft remained as it was placed at the time of operation and a good consolidation resulted at the end of three months.

This patient is at present able to stand erect and is making satisfactory progress in walking. Muscle fatigue and joint pains necessitate that the exercises be of short duration.

The long confinement caused ligamentous relaxation in nearly all the large joints of her body. This was exemplified in the frequent subluxations of her shoulder joints by some trivial movement.

In summarizing it may be said that the dominant facts in this case were:

The successful bone grafting 16 and 19 months, respectively, after the fractures had been incurred.

The successful bone grafting following a septic process.

The successful bone grafting after non-union following resection of the bone ends.

Excision of three inches from the femoral shaft, without causing any apparent damage to the mechanics of the thigh muscles.

The violent and long-continued (seven weeks) muscular contractions.

Failure to anticipate these muscular contractions.

Failure to judge the violence of these contractions.

Failure to secure properly the bone ends of the left femur after excision.

Failure to immobilize properly the extremities from the start.

The successful moulding of the callus of the left femur four months after excision.

The length of time it required for the consolidation of the callus to permit weight-bearing.

The promptness with which the patient was able to discontinue the morphin.

Book Reviews.

Pharmaceutical Botany. By HEBER W. YOUNGKEN, Ph.G., A.M., M.S., Ph.D. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1918.

This book deals with the pharmaceutical aspect of botany. It is divided into two parts: the first is devoted to the morphology and physiology of Angiosperms; it gives the history of

the male fern, coördinates the resemblances and differences between Gymnosperms and Angiosperms, and describes vegetable cytology, plant tissues, organs, and organisms. A treatise is given on cell formation and reproduction, including indirect nuclear division, and non-protoplasmic cell contents. It considers, also, woods, root tubercles, the gross structure and histologic differences between monocotyl and dicotyl leaves, the histology of floral parts, and the histology of types of fruits and seeds. Part two deals with the taxonomy of plants, mainly but not wholly of medicinal value, together with the parts used and the names of the official and non-official drugs obtained from these.

The Clinical Pathology of the Blood of Domesticated Animals. By SAMUEL BURNETT, A.B., M.S., D.V.M. Second Edition. New York: The MacMillan Company. 1917.

This book is a text-book of hematology for the use of students and practitioners of veterinary medicine. It furnishes data concerning the blood of the kinds of experimental animals commonly used. In this edition, what is considered to be normal for each species is stated, and tables are given summarizing the results obtained by different investigations. The book considers methods of examination, the morphology of the formed elements, the normal blood of domesticated animals, variations in red corpuscles and hemoglobin, and influences affecting the leucocytes. Various diseases are described—special diseases of the blood, general and infectious diseases, infectious diseases due to bacteria, fungi, and protozoa, and diseases due to animal parasites. In the examination of these diseases, physical and histological, rather than chemical methods, are employed. In interpreting the results of an examination, the blood should not supplant other means of examination, but may be considered an important symptom.

CHEMISTRY OF FOOD AND NUTRITION. By HENRY C. SHERMAN, Ph.D. Second Edition. New York: The MacMillan Company. 1918.

This volume presents the general principles of the chemistry of food and nutrition, the food requirements of man, and a consideration of the nutritive values of various foods. The book has been published primarily to meet the needs of college classes, but it may be of interest to all who are interested in the scientific aspect of food as a health factor. Although the book is not technical in nature, it contains a number of original investigations and a discussion of several controverted views. The chief functions of food—to yield energy, to build

tissue, and to regulate body processes—and the reactions which depend upon the chemical composition and constitution of the food are described. The metabolism of matter and of energy and the importance of food as a fuel requirement are explained. Carbohydrates, fats, proteins, vitamins, fat soluble A, and water soluble B are considered as nutritive properties and as factors of food value in the problem connected with the economic use of food.

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, A.M., M.D., F.A.C.S. Fifth Edition. Philadelphia and London: W. B. Saunders Company. 1917.

The fifth edition of "Obstetric and Gynecologic Nursing" has been enlarged and revised, making the volume even more valuable than previous editions. Part 1 deals with obstetric nursing, the caring of the mother during pregnancy, parturition, and the puerperal state, and also with the care of the child. It considers conditions of both natural and abnormal pregnancy and describes methods of treatment in cases of accidents and diseases. Part 2 deals with gynecological nursing. It considers methods of examining patients, the general care of patients, local treatment, gynecologic operations, care during convalescence, vaginal celiotomy, cancer, mental diseases complicating pelvic disorders, and venereal disease. In the appendix there is included a dietary and instructions for the preparation of surgical supplies. This is a book of unusual interest and value to trained nurses.

Reclaiming the Maimed. By R. TAIT McKENZIE, M.D. New York: The MacMillan Company. 1918.

"Reclaiming the Maimed" is a practical handbook of physical therapy. The therapeutic agents which are useful in restoring to normal the functions which have been impaired by wounds include electricity, radiant heat, hot and cold water, massage, passive movement, muscular reëducation, and gymnastic exercises. Methods of applying these agents are considered. Twenty appliances for the reëducation of weakened muscles and stiff joints, which have been adopted by the Military Hospitals Commission of Canada, are described. The importance of occupational therapy from the physical, vocational, and moral standpoint is considered. One chapter is devoted to masking facial deformity. The book contains many illustrations and gives an interesting and valuable account of the means which have been potent in restoring to military service and future industrial usefulness men who have been disabled in active service.

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ALCOHOL IN PEACE AND WAR.

It seems probable that prohibition of all liquor, including beer and light wines, will soon be enforced by an act of Congress. It may be proper, therefore, to inquire what the effect is likely to be, that is to say, the effect on the nation's health and vitality. The public discussion of this question has too often been concerned with politics and prejudice, which have led many people far astray in their judgment of the past history of alcohol. It has always been far too easy to generalize on the custom of taking some form of spirits as a habit which affected the health and morals. Only gradually are we learning how imperfect our knowledge can be.

For very special reasons it is desirable that physicians should be very cautious in prescribing alcohol or in recommending its use as a beverage. This postulate will be admitted by

nearly all medical men, and yet it will be found that they are by no means agreed as to the physiological effects of the drug. Another point upon which they differ is the comparative effect of drinking wines and spirits. Are distilled spirits more injurious than the fermented? Has the human race acquired a certain tolerance of alcohol? If so, would it not be wiser to wait for the gradual extinction of the craving? Laws cannot control taste and inclination, but a natural or acquired antipathy can. There are many reasons to think that the consumption of spirits is declining through the action of an antipathy which, by a well-known law of human nature, follows centuries of over-indulgence.

Before the war there was a strong movement in all countries to promote the temperate use of alcohol. More exact physiological investigations were made and the results were generally accepted by physicians. Alcohol ceased to be regarded as a stimulant, a valuable medicine, being recognized in its true character as a narcotic with toxic properties and some nutritive value. But nothing is sharper than the contrast between theory and practice, and hence it was not uncommon for physicians to prescribe it in cases where a stimulant was needed. Its effects on work and efficiency were also found to be injurious. Yet students of the problems of alcohol and skilled movements, of alcohol and industrial fatigue, have sometimes failed to reconcile the results of physiological experiment with their observations of the actual conditions of labor.

One reason is that it is impossible to make a dogmatic assertion about alcohol without finding it necessary to make an immediate qualification. Alcohol, for example, is generally narcotic in its effect, but, if this be the invariable effect, how is it that alcohol braces the nerves in emergencies? The explanation is thus given in the admirable book, "Alcohol: Its Action on the Human Organism," which is the joint work of experts in physiology. "There are emergencies when, though the individual may also imagine that he needs to be braced up nervously, he would in fact be assisted far more by a relaxation than by an increase of tension, and here the sedative action of alcohol, so far as its immediate effect is concerned, may be advantageous." The writers state further that the value of the rum ration may be explained in this way.

In this opinion it ought to be noted that no definition of the term "narcotic" is given; apparently the committee of British experts of whom Lord D'Abernon is chairman, took it for granted that no definition was needed. As they are all familiar with the work of Overton and Meyer, and must have read the definition of narcotics lately given by the Cours de cassation in France—that they are "stupefying drugs" or "stupefians"—it seems strange that a preliminary difficulty was not disposed of at the outset.

The question again concerning the food value of alcohol is one that is most difficult to determine. For it is said that alcohol has very little food value. Yet we read: "Alcohol is a fuel food which is available only for immediate use. Alcohol can, within limits, replace an equivalent amount of carbohydrate or fat in a diet, and has a similar effect in economizing protein." The word "equivalent" is ambiguous. And how can it be said that a food is only "available for immediate use" when it can replace an equivalent amount of carbohydrate and fat? In what sense is alcohol equivalent to fat and sugar?

Of all problems alcohol most urgently requires the axiomatic definitions of a science like geometry. In the preface to "Alcohol: Its Action on the Human Organism," Lord D'Abernon has supplied a remarkable series of terms. They are not unlike the definitions ascribed to Pascal in the Port Royal Logie, inasmuch as they show the exact limits of our knowledge. They are put in the form of questions for the sake of clearness:

1. "In what way, and to what extent, if at all, do solutions of ethyl alcohol in water, as commonly used in laboratory experiments, differ in their action on the nervous system from ordinary alcoholic beverages of corresponding strength?

2. "Are there any differences in inebriating action, and if so what differences, between the several sorts of alcoholic liquors when taken in doses of equivalent alcoholic strength? Does the drunkenness caused by wine or beer differ in character from that caused by spirits?

3. "Is the effect on the nervous system of a given dose of alcohol modified when it is administered in a combination of alcoholic liquors? Does mixing drinks tend to produce drunkenness?

4. "Does the greater or less degree of dilution in which it is administered modify the immediate action of a given dose of alcohol on the nervous system? If so, why and how?

5. "In what respect and through what mode of influence, if at all, is the action of alcohol affected by its administration with food? To what extent does its action vary with the particular foods taken, *e.g.*, fats and sugar? Will a given dose of alcohol have a greater or lesser effect on nervous functions when taken with a meal than when taken on an empty stomach? If there is any difference, is it due to a difference in the rate of absorption, or is it to be explained otherwise, and if so, how?

6. "Does the presence of fatigue modify the effect of alcohol on the performance of skilled movements?

7. "How does climate affect the amount of alcohol that can be taken without injury to health? Is alcohol less injurious in moist climates than in dry climates?

8. "To what extent is the development of chronic alcoholism dependent on disease of the stomach brought about by the directly injurious action of the alcoholic beverages?

9. "Does the feeling of increased cheerfulness induced by alcohol favor the resistance of the body to adverse physical influences, such as cold?

"To none of these questions is it now possible to obtain a precise and authoritative answer. Yet it is of vital importance that knowledge of the points involved should be full and accurate."

In the unsettled state of these questions the British authorities have reached the conclusion that conditions of life evolved in response to the needs of a nation in war cannot be controlled by a group of reasoners whose views are fashioned upon entirely different principles. The result is clearly stated by Dr. Arthur Shadwell, after a personal inspection of workers. The effective measures of liquor control are the curtailment of hours, the prohibition of treating, and the dilution of spirits. In practice they have led to a marked diminution of intemperance.

In this country there is a different custom of taking alcoholic drinks, which has an important relation to questions of health and food conservation. There are patent medicines

which require an immense amount of alcohol for their manufacture. Yet these drugs are not controlled at all. There are also foods which are preserved in alcohol and which are consumed by many persons who think them harmless and nutritious. These medicines are fruitful causes of intemperance and even dipsomania. It certainly seems possible to banish the evils of strong drink in some way that does not leave so many traps and pitfalls as illicit drinking. A federal law may be extremely beneficial, but previous experience and the analogy of other countries where it has been tried do not inspire confidence. So far it has not been a means of suppressing alcoholism and many other evils of drink. The effects of secret indulgence in drink are far more pernicious than such control of hours and public refreshment as prevails in England.

FOLLOWING UP TUBERCULOUS SOLDIERS.

At the beginning of the war the necessity of eliminating tuberculosis from the Army as completely as possible was recognized by the Surgeon-General to be a most important duty. Accordingly, he procured the services of the foremost tuberculosis authorities in the country to deal with the problem. Specialists in tuberculosis and internists of known ability have been commissioned to serve as experts in the camps and cantonments. Under them are the Tuberculosis Reviewing Boards, each composed of from eight to twelve physicians who have had special training in the diagnosis of tuberculosis. Most of these men are commissioned officers of the Medical Reserve Corps. Each base hospital has a well-equipped x-ray laboratory with a competent man in charge.

In a general way the procedure in dealing with tuberculosis at the camps is as follows:

Recruits upon arrival at camp are examined rapidly by regimental surgeons. Cases that present evidence of disease of the chest are referred to the tuberculosis expert, who determines whether the disturbance is tuberculous or not. If tubercular, the man is recommended to the Physical Disability Board for immediate discharge. The Tuberculosis Reviewing Board keeps watch over the camp itself, each man

being examined by it in turn. Doubtful cases are sent to the base hospital for observation. Not every man who is found to have been infected by tubercle bacilli is discharged from the service.

An important distinction is to be made between the terms "contracted in the line of duty" and "not contracted in the line of duty," for the status of the soldiers as to governmental responsibility for care and compensation by the Bureau of War Risk Insurance is affected.

General Gorgas has laid down the following rule to determine whether or not pulmonary tuberculosis has been contracted in the line of duty.

"A case of chronic tuberculosis in which the length of service is three months or less shall be considered to be not in the line of duty; cases of acute tuberculosis shall be considered to be in line of duty in all cases irrespective of length of service. When distinction between acute and chronic forms is not possible, cases of three months' or longer service shall be considered to be in the line of duty; those of less than three months' service shall be considered to be not in line of duty unless it be shown that the patient has had some disease since enlistment, such as measles, which may be expected to reactivate tuberculosis, or unless there is a history of excessive fatigue or exposure in line of duty calculated to break down the resistance of the individual."

The Government does not hold itself responsible for the care of drafted men who have chronic tuberculosis if the service is less than three months. They are given either transportation to their homes or a sum of money equal to three and a half cents per mile for the distance from camp to home. The Bureau of War Risk Insurance is inclined to pay compensation to soldiers found to be tuberculous if the disease is caused by active service, whether reactivated or newly contracted.

Those for whom the War Department assumes responsibility will be sent to government hospitals. At present five of these are planned: one at Otisville, N. Y., one at Azalea, N. C., one at Merkleton, Pa., one at Whipple Barracks, Prescott, Ariz., and one at Denver, while one is now established at Fort Bayard, N. M. A new 150-bed sanatorium at New

Haven, Conn., has been taken over by the War Department. The War Department is much opposed to the policy of placing the men in small units in local sanatoria, owing to desire to make the treatment standard throughout for the purpose of compiling statistics, and to keep the men contented. If they are placed in sanatoria situated near their home they will give too much thought to family problems, which will retard them in recovery.

Those men discharged from the camps because of tuberculosis and "not in line of duty" will number, according to estimates of the Surgeon-General, about 1% of the drafted Army. Many hundreds of these were previously unknown cases. Much interest and desire to help these unfortunates returned from camp is manifested by the various anti-tuberculosis associations throughout the country. By courtesy of the Surgeon-General the names and addresses of those discharged are being furnished to the National Association for the Study and Prevention of Tuberculosis, and this is forwarding them to the appropriate state boards of health and anti-tuberculosis associations, and civilian relief directors. There is necessity for coöperation between these three agencies, for the danger of antagonizing the men by too promiscuous approach, and so frustrating any efforts for their welfare, is great.

The National Association is urging a plan of coöperation. The first agency that should get in touch with these cases should be the Board or Department of Health, either State or local. These authorities are entrusted with the responsibility for the control of tuberculosis, and theirs is the primary responsibility to the individual and the community.

The function of the anti-tuberculosis society, in relation to the cases should be to see that each individual is properly followed up and that the interests of the men as well as of the community are safeguarded. It should visit and direct the individual case only when assistance is required by the health authorities. The Home Service Sections of the Red Cross, to whom this information will be transmitted by the Divisional Directors, should be prepared to supplement the efforts of the other organizations when called upon by them to act. Where relief is shown to be necessary, the Red Cross will administer it in accordance with ap-

proved standards, as provided by the Director-General of Civilian Relief. In other words, the method of approach should be in this sequence: first, Board of Health; second, Anti-Tuberculosis Society; third, Red Cross.

CHICAGO MEDICAL SOCIETY AND COMPULSORY HEALTH INSURANCE.

THE Chicago Medical Society has recently presented the following arguments in opposition to compulsory health insurance:

Health insurance, it avers, is not working out satisfactorily either in Germany or England, where it is now in force. In spite of statements to the contrary, statistics prove that it does not increase longevity. At the present time the white male expectation of life at age of 30 in the United States is 34.87 years, against 34.55 years in Germany. At the age of 70, when the reasonable effects of progress in industrial conditions and public health should be most perceptible, the white male expectancy of life in the United States without social insurance is 8.83 years, against 7.90 years in Germany, notwithstanding many years of compulsory health insurance experience.

According to Prof. Ludwig Bernhard, professor of economy, University of Berlin, many diseases or disorders have sprung up since the advent of social insurance, such as pension hysteria, pension neurasthenia, and pension hypochondria. All of these are now quite frequently met with in German medical practice.

Certain of the insured are no longer as much interested as formerly in the quickest possible recovery, since by malingering frequently the health benefits may be increased.

Compulsory health insurance does not decrease poverty, because the employer, in order to keep his assessments low, will choose his employees carefully, selecting only the healthy and excluding the others by medical examination, and, therefore, there will be a strong tendency to the formation of a large permanent pauper class. Under all schemes for compulsory health insurance as yet proposed, the persons most needing the insurance will not get it,—those who are out of work except on account of illness, longer than the extension of one week for each four weeks during the pre-

vious twenty-six weeks of paid-up assessments, those who are unable to get into the voluntary insurance societies because they are unable to pass the medical examination, those who are not insured because they are unable to get work on account of their age, alcoholism, shiftlessness, general incompetency, or any other disabling condition which prevents them from being employed.

Quoting from Samuel Gompers:

"This fundamental fact stands out paramount,—that social insurance cannot remove or prevent poverty. It does not get at the cause of social injustice. Social insurance in its various phases of sickness insurance, unemployment insurance, death benefits, etc., only provides the means for tiding over an emergency. The labor movement aims at constructive results, higher wages, which means better living for the workers and those dependent upon them; better homes, better clothing, better food, better opportunities, etc., which means relief from over-fatigue, time for recuperation, workers with better physical development and with sustained producing powers. Better physical development is in itself an insurance against illness and a degree of unemployment."

Although it is true that from a wrong sense of national pride medical men in Germany may publicly deny that compulsory health insurance has hindered medical progress in Germany, it has been privately indicated that such insurance is interfering seriously with medical progress. It is a noteworthy and conspicuous fact that in the past twenty years only one therapeutic discovery of the first magnitude has come out of Germany, and that discovery was made by a chemist and not by a practising physician. The German Sickness Societies during their thirty years of existence have so interfered with the income of physicians that now only a few of the financially able or those where prospective marriages could bring them a competency are able to take up the study of medicine, consequently this automatically bars out the naturally fit from the general practice of medicine. This leads to fewer physicians of class, which consequently overburdens others with work. The average "Kranken Klasse" physician, making calls for an average of about 20 cents per call, in order to make his income sufficient to meet living expenses, must make many calls, forcing him to neglect to continue

his education, and in this way deteriorating the service to the great mass of people so that they probably receive the poorest class of medical service in the world. England will be in the same condition in a short time, and, in fact, now the insured are complaining of the service they are getting under the Social Insurance Act.

Attempting to get something for nothing or much for little always pauperizes people, and this is just exactly what compulsory health insurance encourages. Everyone familiar with the workings of the Compulsory Health Insurance of Germany and England who does not hold a sinecure under the system will substantiate the statement that patients run to the doctor for every little ailment just because the service is not charged to them personally.

The system has been tried in Illinois, and investigation has shown that of the money supposedly expended for aid of those insured, 58.5% of the total was disbursed for rent, salaries, and expenses of those administering the system.



CARE OF THE DISABLED SOLDIER IN ENGLAND.

A RECENT publication by the Red Cross Institute for Crippled and Disabled Men, in No. 7 of Series 1, of a pamphlet entitled, "The Development in England of a State System for the Care of the Disabled Soldier," shows England's methods of dealing with her disabled men. The problem of rehabilitating the men who are physically incapacitated so that they may again become capable of productivity, is enormous. The nation's industrial machinery has been carefully analyzed, and much careful thought has been given to the task of fitting into it her disabled soldiers and sailors.

The traditional system of pensions, supplemented by the aid given by philanthropic societies, is deemed inadequate in dealing with a problem of such large proportions as this present war will produce. Instead of relapsing into a condition of absolute dependence upon pensions, and a consequent state of personal unhappiness and national uselessness, the present system aims to substitute the teaching of trades in such a way as to make disabled men self-

supporting. As pensions will not be decreased with increased earning capacity, there is an added incentive toward taking advantage of the training which is offered. The State recognizes its obligation to assist her men on their way back to civil and industrial life. Early in the stage of recovery, the opportunity for beginning a course of training is given. This course is urged, and the support of a man's family during the period of training, and the expense of his training, is paid by the State.

When a man is discharged from military service and returns to his home, the Local Committees, the Ministry of Pensions, and Trade Advisory Committees stand ready to assist him in reëstablishing himself in industry. Training is given in engineering and ship-building trades, printing, furniture making, leather goods, boot and shoe manufacture, jewelry, brush making and dental mechanics.

England has one hundred and fifty trade schools. Joint committees assist local committees in surveying the educational facilities which the schools within their bounds offer. The course ordinarily takes six months; it is short and intensive, and designed to fit an adult in as brief a time as possible to become a wage-earner. Besides a training in vocational schools, training often may be given directly in workshops, with the prospect of securing permanent employment at a fair wage in the same shop. It is difficult to determine upon an equitable basis the wages to be paid to men under 100% capacity. Advisory Wage Boards have been organized to deal with this problem.

After a man has received his training, there is the further problem of placing him in industry. Usually, if he has received training in a shop, he is given permanent employment in that shop. Those who have received training in trade schools are urged not to enter munition factories for the sake of high temporary wages, but to seek employment in some industry which will not be so greatly curtailed after the war. Although employers are now activated by patriotic motives and conscientiously attempt to give preference to disabled soldiers and sailors, it is possible that the economic stress after the war may force the nation's gratitude to a position of secondary importance. For this reason, in view of the keen competition which is likely to ensue when normal conditions return, men are strongly advised to take

advantage of the training offered, in order that they may become skilled workers in some industry, with a chance of a definite wage in the future.

A further benefit to both men and employers lies in the manner in which the problem of Health Insurance has been treated. Disabled men are entitled to the full benefits of the Insurance Act. They are insured at the same rate as normal workers; therefore, as the liability of employers is not increased, there results, in consequence, less hesitancy in employing disabled men.

England has replaced the "*laissez faire*" policy by an avowal of her responsibility to assist men disabled in her service in reëstablishing themselves in civil and industrial life. The system is in keeping with her democratic institutions, and compatible with her national unity and coördination.



PHYSICAL EXAMINATION AS A CIVIL SERVICE INSTRUMENT.

As leading article in this issue of the JOURNAL is published an address delivered by Dr. Andrew F. Downing before the annual convention of The Assembly of Civil Service Commissions at Milwaukee, Wisconsin, on June 21, 1918. It is an essay on government in which the author has expressed to a body of laymen the philosophy of a medical function to a governmental activity which is interested in securing good government by practical means. It is highly desirable that the medical profession should get its due share of credit for its contribution to the forwarding of any public service work. There are over 250 Civil Service Commissions in this country, most of which are of comparatively recent origin. The Massachusetts Commission goes back to 1884, and it frequently receives requests for information concerning physical standards from physicians who are doing this work for other Commissions. Dr. Downing's admirably written article contributes something of this information to medical literature, and should be read with attention and interest by physicians, whether or not engaged in this branch of medical activity.

MEDICAL NOTES.

THE RECENT SMALLPOX OUTBREAK IN GERMANY.—The following account of the recent smallpox outbreak in Germany has lately been published in the *Lancet*.

"The occurrence of epidemic smallpox in Germany is a rare event, for hitherto the majority of the population have been well protected by primary vaccination in early life and revaccination at school age, the males who undergo military training having a second revaccination on being called to the colors. A large proportion of the cases of smallpox reported in Germany have generally been foreigners temporarily resident in that country. The war has brought about certain changes in the constitution of the population of some localities by the addition of large bodies of prisoners of war and of a considerable number of people deported from the occupied territories in Belgium, France, and Russia, who are engaged in forced labor under unhygienic conditions, and many of these persons have never been vaccinated. In the latter part of 1916 a prevalence of smallpox began in Germany, the main facts of which may thus be briefly outlined.

The infection was introduced from Russia by prisoners of war. Some of the earlier cases occurred at Hamburg, Lünenburg (in the province of Hanover, Münster (Westphalia), and Rathenow (Brandenburg), 43 miles from Berlin. From these and other centers smallpox spread over Prussia, Bavaria, Saxony, Baden, and other states of the empire. So far as can be ascertained, 524 cases were reported during 1916, and in 1917, up to September, about 4000, the case mortality rate being about 10%. Thus, in the 12 months ended September 30, 1917, about 4524 cases of smallpox were notified in Germany. Comparing these figures with those of the previous 20 years, we find that the largest numbers recorded in any year were 434 cases and 65 deaths in 1908, a considerable proportion of them being foreigners. Professor Kirchner, of Berlin, who holds an official post in the Ministry of the Interior, has lately in a public speech referred to the recent smallpox outbreak in Germany and the lessons to be derived therefrom. He pointed out that of 1000 cases specially investigated 150 occurred in persons under the age of 30, and 850 in those over 30 years of age. Of the latter group, 40 were in the age-group 30 to 40 years, 73 were aged from 40 to 50, 236 were from 50 to 60, no fewer than 332 from 60 to 70, and 169 over 70 and up to 92 years of age. The mortality was similarly highest in the later years of life, the exact opposite of what occurred in pre-vaccination days.

As yet there is no information published as to the number of smallpox cases and deaths among the prisoners of war and the deported

people. Presumably a proportion of those attacked were Germans, and it may be assumed that these were persons past middle age whose vaccination and revaccination, performed in early life, had ceased by lapse of time to protect them. Professor Kirchner is evidently of this opinion, for he urged everyone over 35 years of age who had not been recently protected to submit voluntarily to revaccination to restore his lost immunity. He also urged the compulsory vaccination of tramps, beggars, and other wandering folk, as these had often been proved to act as carriers of the infection from place to place. There is recent evidence to hand that smallpox has still been recurring during the present year in Germany, though not to the same extent as in 1917. Cases have been notified from such widely separated districts as Posen, Oppeln, and Breslau in the east, and Düsseldorf, Duisburg, Münster and Essen in the west. The presence of the disease has also been reported in some of the large towns, including Berlin, Potsdam, Dresden, and Stuttgart. The *Times* has lately published reports regarding the occurrence of 'black smallpox' among the employees at Krupp's works at Essen, where prisoners of war, deported people, and workers from neutral countries, along with Germans, are employed in large numbers under unfavorable sanitary conditions. The German authorities, as might be expected, have tried to minimize the gravity of the prevalence of the disease at Essen and elsewhere. The smallpox season may be regarded as having passed for the present, but a recrudescence of the disease is not at all unlikely in the autumn and winter. England has so long been free from epidemics of smallpox that many people have lost the dread of the disease and have consequently neglected vaccination, especially since the Act of 1907, which gave facilities for obtaining exemption certificates to those who had no genuine 'conscientious objection,' but who merely wished to avoid a temporary inconvenience to themselves. There is, in our opinion, a considerable danger of smallpox being imported into this country from abroad at the present time, and in view of the large number of unvaccinated children now existing in England, the chances of a serious epidemic cannot be ignored if the disease once succeeded in gaining a footing in the country. In the circumstances it would be imprudent to postpone vaccination and revaccination till the danger has seriously developed."

WAR NOTES.

BOSTON PHYSICIAN WOUNDED.—Major Daniel F. Maguire, who has recently been wounded while on service in France, was born in this city October 21, 1882. He was graduated from the Boston Latin School in 1899, and from

Harvard Medical School in 1906. After two years as house officer at the City Hospital, he was sent to the new East Boston Relief Hospital where he was largely influential in making that hospital an institution of excellent service. He resigned from the hospital service Nov. 1, 1909, to become a first lieutenant in the Medical Corps.

ETHER EXPLOSION AT ARMY PLANT.—In St. Louis, two girls and a fireman were probably fatally injured and 230,000 quarter-pound cans of ether for the American Army in France were destroyed when a fire, followed by many explosions, did \$125,000 damage to the Mallinckrodt Chemical Works. After an investigation, officers of the company said the fire was caused by a spark from an electric soldering iron.

DR. GRIEUMARD APPOINTED CAPTAIN.—Dr. George A. Griemard, of Fitchburg, has been appointed a captain in the Medical Reserve Corps, and has been ordered to active service to Camp Greenleaf, Fort Oglethorpe, Georgia.

SOUTH BOSTON DENTIST CITED FOR BRAVERY.—Dr. Patrick I. Kelley has been cited for bravery in leading a party of men out into No Man's Land. Dr. Kelley is a top sergeant in the 103d Ambulance Company, 101st United States Infantry.

DR. BAYNE IS A GERMAN PRISONER.—Dr. H. Breekinridge Bayne, a Washington physician, believed dead since last September, is safe in a German prison camp. A letter dated March 15, bearing a Bucharest postmark, has been received. Dr. Bayne was serving with the British Red Cross last September, when the Germans invaded Rumania. The hospital staff fled, but he remained behind to attend the wounded and was taken a prisoner.

AMERICAN HOSPITAL BEGUN AT SOUTHAMPTON, ENGLAND.—Work has been begun on the largest American military hospital in Great Britain. It will be located near Southampton, and will accommodate 3000 wounded Americans from the west front.

The site is a magnificent country estate of nearly 200 acres, which the Red Cross has purchased. The old manor house will be the central building of the new hospital and around it

the Red Cross is building nearly 10 acres of hutments and wards.

The central corridor of the new hospital will be 1000 feet long, opening on either side into wards, each one of which will accommodate from 60 to 100 patients.

The site is one of the most beautiful in Southern England. It overlooks Southampton Harbor and the Isle of Wight, and has a frontage of half a mile on the water, with good fishing and boating facilities.

The property includes a great amount of woodland, where American lumbermen are already felling trees to provide heavy timber for the new buildings.

The contracts provide for opening the hospital with the first 400 beds in six weeks. The institution will have its own electric plant, water supply, kitchen gardens, dairy, chickens and pigs. The construction is going on under the supervision of Capt. Harper Sibley, ex-president of the Chamber of Commerce of Rochester, N. Y.

COLLEGES ASKED TO HELP THE ARMY.—Major-General Gorgas has announced that the Medical Department of the Army, through the National Research Council, will soon issue an appeal to American colleges and universities urging them to alter their curricula so that third and fourth year students may receive special training which will enable them to qualify as officers and for other work in the Medical Department.

The appeal will be sent to all the principal colleges and universities in the country, but as it is realized that important institutions may not, for various reasons, receive the appeal, the request is made by Dr. Gorgas that all directing heads of such institutions write either to Dr. Richard M. Pearee, of the National Research Council in Washington, or to the Division of Laboratories in the Office of the Surgeon-General, for details of the proposed plan.

General Gorgas is reported to have said:

"These colleges will render valuable assistance to the department by offering these special courses to their students, who will enter the Army when they become of age, or in the event that they volunteer before that time. The students desired are those who are taking various scientific courses. The course proposed by the Medical Department should appeal to men who are specializing in biology, plant

pathology and in industrial and agricultural bacteriology.

"In a number of institutions the necessary course can be arranged by a simple modification of the already existing course in bacteriology with added emphasis on special subjects of value to the Army.

"As to completing such courses, arrangements for enlistment can be made through the Surgeon-General's office, if the applicant is under draft age, and if of draft age, he can be inducted into the service and assigned where his special training will be of value.

"This plan has already been tested in two colleges and the success attained has led the Medical Department to apply it to as many colleges as possible. From one such institution every man taking the modified course was admitted directly into the Army and went to one of the training schools where a portion of the men will later qualify for commissions in the sanitary corps. Others have qualified for positions at field or mobile laboratory units and as assistants in base and evacuation hospitals."

LIEUTENANT DAVIES HONORED.—Lieut. M. R. Davies, of the United States Army Medical Reserve, who is serving with the British Army, has been awarded the Distinguished Service Cross, one of the four new American decorations, for bravery.

On January 8 he entered a dugout, under continuous shell fire, and remained there attending the occupants after it had been blown in. He performed an amputation operation and saved the life of a British soldier. He received the first medal conferred on any American serving with the British forces.

SEVEN TONS OF SURGICAL DRESSINGS SENT TO EVACUATION HOSPITALS.—The American Red Cross recently sent seven tons of surgical dressings and five tons of special diet foods to the principal evacuation hospitals of the American Army. The Red Cross Medical officers, storehouses and pharmacy will operate night and day during the drive of the French and Americans.

The chief of the medical section arrived from the front on July 19, and started back the next morning with a load of emergency supplies, including 50 gallons of alcohol, 2000 dozens of tetanus anti-toxin, surgical instruments, several gross surgical needles, dressings of all kinds and materials necessary in the operating rooms.

Three hundred and fifty beds, with American doctors and nurses, have been added to the

American Red Cross hospitals at St. Pol for use during the present offensive. The tent hospital outside of Paris has added 300 beds.

POSTHUMOUS AWARD OF WAR CROSS TO PHYSICIAN.—Dr. George P. Howe, who was killed in action in Flanders, September 28, 1917, has been awarded, posthumously, the distinguished service cross for extraordinary heroism.

Dr. Howe was a first lieutenant in the American Medical Officers' Reserve Corps and was assigned for service with the British Army. At the time of his death in Tower Hamlets, Flanders, he was attached to the Royal Fusiliers, a famous British regiment, as a battalion medical officer. He was one of the first American officers killed in action. General Pershing says:

"His was one of the spirits that bring pride to our own hearts and confidence to the hearts of our allies."

ELKS' PLEDGE WAR HOSPITAL.—A second reconstruction hospital for men in the service has been pledged to the Government by the Order of Elks. The structure, one of the largest of its kind in the world, is to cost \$350,000 and will be erected at New Orleans. A few weeks ago the Order laid the cornerstone for a \$250,000 reconstruction hospital at Boston.

2000 NURSES NEEDED FROM MASSACHUSETTS.—Just as the young men of the country have responded to the need of their country, so, too, must the young women. The men have not hesitated to leave their business and high positions of trust to answer the call of duty. From the Surgeon-General of the Army comes a similar call to the young women of the land to go into training camps no less important than those at which their brothers are preparing for overseas service—the training school for nurses.

Already the Red Cross has withdrawn graduate nurses by the thousands for service "over seas." It is estimated that the army will require 25,000 by January 1, 1919. This deficiency must be made up by filling the training schools to their utmost capacity, that civilians may be cared for and the standard of health of the country be maintained. Massachusetts must register 2000 before August 11, 1918.

To accomplish this Washington is enlisting a Student Nurse Reserve of 25,000 young women between the ages of 19 and 35, of sound health and well educated, who shall hold themselves in readiness until April 1, 1919, to be assigned to training schools as vacancies occur. So great is the need, an intensive drive is being carried on from July 29 to August 11, by the Woman's Committee, Council of National Defense, in coöperation with the Red Cross, to enlist this reserve.

The student nurse will receive board, lodging and tuition free and, in many cases, a small remuneration for incidentals. The course covers from two to three years, according to previous training. After graduation the nurse can command from \$100 to \$300 a month.

No war service is more vital or more satisfying than that of the nurse who stands side by side with the fighting forces in the first line of combat, and out of the fearful waste and havoc of war helps to save numberless precious lives. She helps to protect our men from the scourge of disease, often more deadly than bullets. She mitigates the suffering and horror of war hospitals and helps to keep alive the faltering courage and spirit of wounded men.

But this is not all. Back of the fighting line there is another army, needing the services of the nurses, the industrial workers, the food producers, and others as essential to the successful outcome of the war as the soldiers and sailors. All these, as well as the children, must be cared for if the nation is to be preserved intact and ready to lead in the great reconstruction after the war.

Only graduate nurses can meet the tremendous emergencies abroad, but here at home there is plenty of service which the student can render to keep up the standard of health of the nation. In so doing she is just as truly serving her country as is her Red Cross sister over the sea.

It is, therefore, a solemn duty on the part of young women—one that cannot be taken lightly—to abandon lives of selfish, self-centred pleasure and enlist in this nursing service, than which there is no greater.

Enrolment cards may be obtained at local nurses' training schools or from Miss Helen Wood, Massachusetts General Hospital, director of the central recruiting station for Massachusetts.

ANTHRAX AMONG SOLDIERS.—At Camp Merritt, N. J., eleven soldiers are ill with anthrax, or wool sorter's disease, due, it is believed, to the use of cheap shaving brushes. In this connection, it is interesting to note the following review of the English experience, published in the United States Public Health Report for June 12, 1918:

"Among civilians in England, 19 cases are included from June, 1915, to October, 1916, 14 of which were proved to have originated from infected shaving brushes, the evidence being that a new brush was used in each case just before the malignant pustule appeared, and that virulent anthrax was found not merely on the patient's brush (in each case the patient might have infected it), but on similar brushes obtained from the same shops or wholesalers. The other five cases were suspected of having originated in the same way, though evidence was not conclusive.

"Among the English troops in France, 28 cases of anthrax occurred from 1915 to February, 1917, but although the site in 23 of them was in the shaving area, and it was known that some of the infected lots of brushes were distributed to troops, proof of infection in this manner is lacking.

"From the beginning of the war up to February, 1917, 18 infections with anthrax occurred among the troops in England, at least 12 of these being on the shaving area, and 4 almost certainly being due to shaving brushes.

"Of the 33 cases with known outcome, 21 died, a mortality of 64 per cent. In this connection it may be remarked that except in endemic locations, such as tannery districts, many mild cases probably recover without diagnosis, the case mortality appearing higher on that account.

"One reason for the high mortality may lie in the site, infections of the neck being more serious than those elsewhere on the body. In one case the pustule developed within 24 hours of an accidental razor cut on the first day of using the infected brush. In another case the infected brush was used only once and the pustule developed about six days later. Two of the patients had fatal anthrax meningitis without any local lesions other than the apparently noninfected razor cut. Meningitis due to the anthrax bacillus has been reported from Holland and England, and one of the recent American cases has been of this type.

"Fifteen of the civilian cases were due to 12 different types of brush, but six of these types were from one manufacturer, the hair used coming from different lots. It is disconcerting to learn that some of the infected brushes were made from hair which had presumably been disinfected in accordance with requirements. Six other manufacturers were implicated, at least

two of them being New York firms and one an Osaka firm. Four of the fatal cases were due to New York brushes. The brushes had gone through the hands of various wholesalers, retailers, and brokers, and much credit is due those who traced the origin of the infection in spite of the lack of method in storing and dealing with these cheap brushes in commerce. In the very heavily infected Japanese lot about 75 per cent. of a shipment of 43,200 were traced and destroyed; an indication of the low human susceptibility to anthrax is found in the fact that only one case is known to have originated from the remaining 10,000, though all samples of this lot examined were infected. The horsehair from China and Siberia seemed to be principally involved, especially the gray or yellowish hair and imitation badger hair; some of the dirty, infected Chinese hair had been incorrectly invoiced as 'goat's hair.' Hog bristles, which are stiffer, seem to be free from anthrax, though much of this material comes from Siberia. Previous experience with occupational anthrax had made English and German manufacturers wary of Russian, Siberian, or Chinese horsehair, but the great demand for brushes and the interference with usual trade channels for the raw material led to a letting down of the bars on the part of the older manufacturers, and carelessness on the part of the new manufacturers who knew little of the danger of horsehair. Black or thoroughly dyed hair seems to have been disinfected satisfactorily, but there is a tendency to avoid high temperatures in the disinfection of the white hair and of that colored to imitate badger hair. The thorough and repeated washing in hot, soapy water which a shaving brush receives in use appears to rid it of the dangerous infection mechanically, since most of the cases occurred soon after the new brush was used, and in two brushes which had caused anthrax the free portion of the hair showed no infection, while anthrax bacilli were found on the ends of the hair embedded in the handle; in the corresponding unused brushes, the anthrax bacilli were found on the free portion of the hair."

DOCTORS IN CLASS ONE CALLED.—All physicians and surgeons in Massachusetts who are in the draft age and are in Class One, and have not already volunteered into the Army or Navy Medical Reserve, have been ordered into military service. The registrants are to be inducted on August 11 and are to report at Fort Slocum, New York, where they will be given special training. The men are to be inducted regardless of whether they are physically fit for general or special service.

MEDICAL MEN NEEDED FOR INDUSTRIAL CASES AT HOME.—The importance of maintaining the

industrial health of the nation must not be overlooked. If ever there was a time when much attention should be paid to the care of the men and women working in our factories and shops, it is now. Not only is labor scarce, but medical men to look after the sick and injured are growing fewer and fewer. By the time we have 5,000,000 men in France practically 40,000 of our physicians will have been enrolled in the service. It has been estimated that in the United States there are 145,000 men and women licensed to practice medicine. Of these, more than 81,000 are members of the American Medical Association. Probably one-third of all the best members of the profession will soon be engaged in war work. The other two-thirds must do all the work at home.

It is just as important to keep our men, who are working on supplies for the Army, in good health as it is to keep our soldiers so. As a matter of fact, it is more important, because our soldiers, unless they are well fed and well clothed and have plenty of ammunition, cannot be kept well or fight well. It must be remembered that it is just as important to get an injured man back to his work as quickly as possible as it is to get a wounded soldier back into the ranks. The Surgeon-General of the United States recognizes the situation and is loth to accept any man who is devoting the greater part of his time to the care of industrial cases. One must be careful how he applies the term "slacker" to the man who remains at home, for the health of the workers at home must be maintained, and able medical men are needed for these industrial cases.

COMMISSIONS IN MEDICAL RESERVE CORPS.—The following commissions in the Medical Reserve Corps have been announced:

Captains. W. G. Turner, Fall River; A. C. Dedrick, Fall River; F. A. Webster, Boston; G. H. Grant, Boston; H. W. Nowell, Boston; Warren Joel Howard, Waitefield, Vt.

First Lieutenants. H. A. Courtemanche, Lynn; H. V. Hyde, Boston; R. C. Jones, Fitchburg; A. M. O'Connor, Housatonic; E. T. Saeger, Brookline; T. F. Wheeldon, Boston; Edwin Pakenham Ruggles, Dorchester; Manfred E. Simmons, Boston; Edward O. Tabor, Lowell; J. M. Gilchrist, Springfield; N.

Holden, Springfield; W. T. Jones, South Hamilton; G. H. McClelland, Springfield; H. W. Beck, Boston; M. J. Holmes, Cambridge; G. A. Feleh, Boston; G. Ljungberg, Worcester; R. E. Merritt, Wollaston; R. H. Morris, Everett; E. H. Wiswall, Wellesley.

First Lieutenants. C. E. Allard, Dorchester; S. B. Amis, Natick; H. F. Dearborn, Lawrence; M. L. Alling, Lowell; J. E. Burnette, Brockton; C. T. Cobb, Northampton; N. M. Cooney, Northampton; J. J. Curtin, Waltham; H. J. Falvey, Worcester; J. L. Mara, Brockton; F. Hinchcliffe, Cohasset; D. M. Marofsky, Camp Devens; N. B. McWilliams, Williamstown; S. C. Eveleth, Marblehead; J. J. Paglia, Worcester; W. M. St. Georges, Holyoke; W. L. Wright, Boston; G. C. Anthony, Wellesley; G. L. Bunnell, Foxboro; H. A. Callahan, Jamaica Plain; F. H. Coffin, Haverhill; D. F. Coleman, Wellesley; M. A. Gilbert, Chelsea; L. W. Harris, Cliftondale; T. J. Norton, Pittsfield; Patrick H. Kettredge, Portsmouth, N. H.; John H. Woodruff, Barre, Vt.; Willard L. Wright, Boston.

First Lieutenants (dental). N. H. Traey, Boston; J. Smith, Cambridge; H. E. Nash, Westboro.

SPANISH GRIP AMONG SWISS TROOPS—There have been 305 deaths in the Swiss Army from Spanish grip. The number of civilian deaths has not been published. The hospitals are overcrowded and there is a great shortage of doctors and nurses.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 27, 1918, the number of deaths reported was 221, against 188 last year, with a rate of 14.69 against 12.69 last year. There were 54 deaths under one year of age, against 28 last year.

The number of cases of principal reportable diseases were: diphtheria, 45; scarlet fever, 4; measles, 48; whooping cough, 50; typhoid fever, 1; tuberculosis, 46.

Included in the above were the following cases of non-residents: diphtheria, 13; measles, 1; tuberculosis 2.

Total deaths from these diseases were: diphtheria, 4; measles, 4; whooping cough, 6; typhoid fever, 1; tuberculosis, 18.

Included in the above were the following non-residents: diphtheria, 2; measles, 1; whooping cough, 1; tuberculosis, 1.

RECOVERY OF INFANTILE PARALYSIS VICTIMS.—The Executive Committee of the Instructive District Nursing Association, in a report for the first six months of the year, announces a marked number of complete recoveries from the after-effects of the infantile paralysis epidemic of 1916. The improvement and recovery of patients has reduced the number of visits by district nurses from 1937 during the first six months of 1917 to 719 for the first six months of 1918.

The 105 nurses of the Association staff made 111,348 visits during the first six months of this year, 5404 of which were pre-natal visits. New patients registered totaled 11,214, of which 1946 were new-born babies.

CRANE SANATORIUM.—A recent statement of the National Tuberculosis Association to the people of the country emphasized that there were more than 1,000,000 tuberculous persons in the United States, and that there was an imperative need for more tuberculosis hospitals. A paragraph from that statement reads as follows:

"As something more than 1,000,000 persons are suffering from this disease in the United States, and as the previous shortage in accommodations has been rendered more acute by the problem of providing proper care for men rejected in the draft and discharged from the Army on account of tuberculosis, any ban at this time on new buildings of proper character would be extremely serious."

The Crane Sanatorium, which is in process of erection at Rutland, Mass., is being completed as fast as funds permit, and represents the only effort being made in New England to increase sanatorium accommodations. Contributions are much needed at this time in order that the building may progress as rapidly as possible during the summer months.

PHYSICIANS NEEDED FOR BABY HYGIENE ASSOCIATION.—With more and more men going into service, the difficulty in keeping our home institutions adequately manned is becoming acute. The Baby Hygiene Association, which in the past has depended almost entirely upon recent medical graduates to conduct its well-baby clinics, finds itself seriously handicapped by this shortage of physicians. This condition of affairs is especially unfortunate, since war conditions make child conservation all the more imperative. To those physicians who are obliged to remain at home the Association of-

fers the opportunity of doing very vital war work by taking charge of well-baby clinics. Men who would be willing to give a part of one afternoon each week are asked to communicate with the Director, Dr. J. Herbert Young, 296 Boylston Street.

Correspondence.

DIRECTORY FOR WET NURSES.

Boston, July 24, 1918.

Mr. Editor:

I am writing this letter in the hope that its publication in your JOURNAL, if you see fit to publish it, will once more call the attention of the physicians of Massachusetts to the existence of the Directory for Wet Nurses at 63 Binney Street. This institution is prepared to furnish wet nurses or drawn breast milk at any time. It guarantees that the nurses are healthy and that their milk is of good quality, but gives no guarantees as to their characters, habits and dispositions.

The Committee of Ladies in charge of the Directory for Wet Nurses, feeling that they were perhaps not meeting the demands of the public as well as they might, have recently adopted a new schedule of charges. This schedule is as follows:

When the wet nurse lives in the patient's family, \$15.00 per week. The wet nurse's baby accompanies her and is to be fed on the bottle, unless the nurse has milk enough for both babies.

If the wet nurse remains at the Directory and her milk is drawn for the patient, the patient getting all of her milk, the charge is \$30.00 per week.

Drawn breast milk is for sale at 25 cents an ounce. The maximum charge for the milk for a single baby is, however, \$4.00 per day, even if it takes more than 16 ounces per day. The explanation for the slightly higher charge for breast milk when the wet nurse remains at the Directory is that in this instance the patient gets all the milk from one woman, while in the other instance the patient gets the mixed breast milk of several or many women.

These charges may at the first glance seem rather large. They are calculated, however, just to cover the expense of running the Directory. They will not cover the expense of running the Directory, however, unless the wet nurses of the Directory are used freely by the public, because the overhead charges remain the same whether few or many nurses are in the Directory.

Suitable reductions in the charges given above will be made for people unable to pay these prices, if, in the judgment of the Committee in charge of the Directory, they are justified.

The wet nurses, who are in the Directory waiting for cases, are paid a reasonable sum per week. Only a part of their milk is given to their own babies; the rest of it is drawn and given to various Boston hospitals that care for sick infants.

Whether the Directory for Wet Nurses will be able to continue the work which it has undertaken depends on the support which it receives from physicians and the public.

The Committee in charge of the Directory for Wet Nurses is anxious to give the best possible service to physicians and to the public. If the service rendered is not satisfactory, complaints sent to Mrs. F. Lothrop Ames, 306 Dartmouth Street, Boston, will be given due attention.

Yours sincerely,

JOHN LOVETT MORSE.

RECRUITING OF STUDENT NURSES.

Washington, D.C., July 3, 1918.

Mr. Editor:

1. This is to inform you that a nation-wide campaign to recruit 25,000 student nurses, both for the Army School of Nursing and for all accredited training schools connected with civilian hospitals is to be launched on July 29th.

2. It will be conducted under the direction of the Woman's Committee of the Council of National Defense upon the request of the Committee on Nursing, General Medical Board. It will be strongly supported by the cooperation of the Surgeon General's Office, the American Red Cross and of the General Medical Board and State Councils Section of the Council.

3. It is designed to be a direct appeal from lay women to the young womanhood of America to enter upon a course of nurse training. The appeal will be made on the basis that every day of a student nurse's training represents a double patriotic service in that while she is preparing for military duty later, she releases a graduate for military duty now and herself cares for the civilian population.

4. The Committee on Nursing and the Woman's Committee join me in urging the medical profession through our State and local committees to encourage the families of their patrons to respond to this call; and also to lend their hearty cooperation during the recruiting days. It is especially desirable to use this opportunity to point out the fact that the maintenance of local hospitals and the training schools connected with them is an imperative community obligation.

FRANKLIN MARTIN,

Member the Advisory Commission.

RECENT DEATHS.

DR. ALBERT HERDER died recently at his home in Arlington, Mass. Dr. Herder came to this country from Germany, where he was born 48 years ago.

DR. WILLIAM J. MCGURN died in Boston, of diabetes, March 19, 1918, aged 46 years. He was a graduate of the Tufts College Medical School in the class of 1904, and was a Fellow of the Massachusetts Medical Society. He is survived by his widow.

DR. JAMES HENRY STUART died recently at his home in Brighton, Massachusetts. He was a graduate of the New York University Medical College, class of 1880, a member of the Massachusetts Medical Society and the Alumni Association of the New York University Medical College.

DR. GEORGE LUND TAFT died recently at his home in Cambridge, Massachusetts. Dr. Taft had practised dentistry in Cambridge for many years. He was born in Boston October 19, 1859. He was graduated from Boston University in 1884, and from 1885 to 1890 was an instructor in the Western New York Institute for Deaf Mutes. He returned to Boston in 1891 and took a course at the Harvard Dental School, from which he graduated in 1894.

DR. E. W. SANFORD, of the Johns Hopkins Medical School, died recently in Centerville from blood poisoning, produced by accidental inoculation while engaged in research work for the government. When he found that symptoms of poisoning were developing in himself as he had observed them in experiments on guinea pigs and pigeons, he informed his parents and prepared for death. While ill a letter of praise for his work came to Dr. Sanford from Dean J. W. Williams of the medical school.

Dr. Sanford was 25 years of age and a graduate of Yale.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

MEETING OF THE SECTION OF HOSPITAL ADMINISTRATION, JUNE 19, 1918.

HOSPITAL STANDARDIZATION—ITS MEANING.

By JOHN T. BOTTOMLEY, M.D., F.A.C.S., BOSTON.

HOSPITAL standardization, properly understood in its motives by both parties to the project, administered in a spirit of toleration and common sense, and accepted in a disposition of willing coöperation, cannot but result in a splendid gain in the general efficiency of the hospitals of this country. The high position of the national bodies supporting the movement, the character and personality of the men having most to do with its inception and its conduct guarantee the honesty and fairness of its principles as well as the prudence of its administration. The coöperation of the hospitals on the part of both the executive and the professional personnels may, I believe, be safely assumed, provided that the object of the movement is clearly seen and the means proposed for its accomplishment properly appreciated.

It is hoped that this brief paper will set forth in a sufficiently simple and concrete way the meaning of hospital standardization and the

proposed method of beginning its accomplishment. I have no desire to be regarded in this matter as a spring of knowledge, primitive and original, but rather as one of the channels through which flow the thoughts and sometimes the very words of those in whose minds the idea of hospital standardization first took form and by whose hands the machinery has already been set in motion.

Now, to standardize intelligently anything material the very first requisite is a clear view of the object or end of the thing's existence and of the best legitimate means for the attainment of that end. Why do hospitals exist? For what purpose are they built and maintained? Simply and solely for the patient and the patient's good. Patients are not for the use and good of the hospital, as many seem to assume; hospitals exist solely for patients: the patient of today and the patient of tomorrow, his care, his relief—this and this alone is the essential object of the being of hospitals; other desiderata may accompany the attainment of this end or may follow in its train, but these are secondary and not primary in any sense of the word. The safety, the good of the patient, is the supreme law of every hospital and, as a necessary consequence of this fact, patients have a natural, inalienable right to expect from hospitals adequate care and treatment. If pa-

tients (or, to put it another way, the public) are not getting such care and treatment, they have a right to know the truth, to seek the cause and to have the wrong righted. These facts are fundamental and must be thoroughly understood as basic before any rational discussion of the question of hospital standardization is possible.

It is manifest, of course, that the best means of securing adequate treatment of patients is the proper manning, equipment and conduct of the hospital itself. That goes without saying.

Hospitals existing, then, for the patient, his cure, his relief and the only means to this end being the medical profession, the standardization of hospitals must mean simply this—seeing to it that the highest possible percentage of the best medical knowledge and skill available in a community reaches the patients in the hospitals of that community. This is certainly not an unjust proposition, surely not an unfair request.

Of course, it is evident that the hospital problem and consequently the standardization problem differs in different communities. The problem of the large municipal hospital is radically different from that of a hospital in a rural community; entirely different populations are to be served; entirely different conditions must be faced. But however much the numerator of the hospital fraction (so to speak) may vary in conditions, in surroundings, in problems to be solved, the denominator, that remains constant and must remain constant, is the getting to the patient the highest possible percentage of the best medical skill available. This application of medical knowledge and skill to the hospital patient can take place only through the physician; hence the standardization of hospitals really means only the standardization of the medical profession.

How is this standardization to take place? Is it to come through a force outside the profession or is it to begin and to be carried out from within? No standardization, no reformation that really has a permanent desirable effect can come from without the body to be standardized, to be reformed. The incentive, the resolve to improve and to do better, as well as the determination to carry the resolve into action, must come from within, else no durable improvement can result. Fortunately, as with the standardization of medical schools, the movement has received its impetus from within

the medical profession itself, and this fact augurs well for success.

The problem, however, is by no means easy of solution in all its details. Its consummation will not come at once. All hospitals are not rich; many hospitals are poor; all the good work is not done by rich hospitals exclusively nor all the poor work by the poor. Money and bricks and marble and natively clad attendants do not make a good hospital, but brains and effort and conscience and perseverance do. This movement for hospital standardization has no intention of putting a premium on money, bricks and marble, or of imposing a handicap on brains, effort and conscience; it looks forward to aiding every hospital, to help it do good work, if it is doing poor; to do better work, if it is doing good. We do not mean to be exclusive; we want to get every institution worthy of the name "hospital" interested in this movement. If we are going to succeed, we must not set too high a standard in the beginning; but there must be some minimum degree of possession of certain qualities below which we may not go. We plan to keep the minimum requirements at such a level (at least, in the beginning) that 90% of the hospitals of the country will be registered as willing participants in this movement. To attempt to set up an aristocracy of hospitals would be to defeat our own end. If we once succeed in getting the great mass of hospitals in this country vitally and willingly interested in this cause, there can be no question as to its success.

What, then, are we to set forth as our primary requirements? *First* of all, a sufficient record of the patient. A sufficient record does not necessarily mean a complicated or an extensive one. A sufficient record will show what symptoms led the patient to come to the hospital, what facts in his earlier history have a bearing on his present illness, what the examination of his physical condition disclosed, what the pre-treatment diagnosis was, what was done for the patient, what the ultimate diagnosis was and what was the result of the treatment.

Second. Sufficient laboratory space and equipment for the doing of the ordinary chemical and microscopic tests. Elaborate laboratories are not demanded. Provision should be made for the usual clinical examination of the blood, the sputum, the stomach contents and the excreta. The microscopic examination of tissues removed by the surgeon is to be re-

quired. Many hospitals cannot afford the full-time services of a capable pathologist, but it is within the reach of every hospital to arrange for the doing of its pathologic work by the pathologist of a neighboring institution. I believe, too, that we are fast approaching the time when the State, through laboratories at various central points within its limits, will undertake such work for all who may wish it.

Third. The hospital will be asked to establish some supervision over the professional work done within its walls. This supervising authority may be vested in the trustees, in the executive or in a committee of the staff appointed by the staff. That some such authority exists and is active is the essential thing; what it is or where it is matters little. It must be active, sensible and just. My personal choice at present would be a small committee appointed by the staff from its members. I realize that this solution is not entirely free from objection, but responsibility must be placed somewhere and a staff committee seems the most fitting and least objectionable place for it.

These are the three preliminary requirements and to me they do not seem unreasonable. Standardization will for a time, at least, have little to do with the executive conduct of a hospital except in a very general way. The cost *per diem* per patient is not of paramount importance. The care *per diem* per patient and the result of that care is of the greatest moment.

We hope to increase the interest of trustees and executives in the professional work of the hospital—in the professional output of the institution they are running. Hospital efficiency is what we are looking for. Is the treatment in this or that hospital adequate and timely? Are the patients restored to health as frequently as possible, as far as possible and as quickly as possible? The answer to these questions is far more important and essential than the determination of how the coal is brought to the furnace and the ashes carried away, etc.

How is a beginning to be made? It is proposed that a visitor appointed by the national bodies interested in this movement will come to a hospital and meet the trustees, the executive department and the professional personnel. A friendly conference will be held, the object of the visit explained and, if the hospital authorities are willing, an inspection of the hospital will be made, not in any inquisitorial spirit, but

in a kindly, friendly, tolerant way. The visitor again meets all having to do with the hospital conduct, discusses his findings with them, tells in what way he thinks the hospital may be improved and offers for consideration such ideas as he may have drawn from his inspection. At some later period (six or eight months) he makes his next visit. No report is to be made to the central authority until after his second inspection.

As I understand the matter, hospitals are not to be classed as A, B, C, D, etc., but as institutions where satisfactory conditions do or do not obtain.

A full discussion of this whole matter cannot be presented in a ten-minute paper. Undoubtedly, I have left much unsaid that might well be said. I hope, however, that I have outlined with sufficient clearness the object of this important movement, the character of its motives, and the simple primary conditions with which every hospital will be asked to comply.

The basic, the fundamental idea of the whole affair is the fact that hospitals exist primarily for patients, not patients for hospitals. *Primum non nocere* should be written large over the door of every hospital. To carry that motto into practice in the ward at the bedside of every patient and in the operating room at the doing of every operation is the end that hospital standardization hopes to attain.

DISCUSSION.

DR. HOMER GAGE, Worcester, Chairman: Dr. Bottomley's paper is open for discussion. He has presented very concisely and clearly, it seems to me, the objects which the College of Surgeons and the allied institutions and hospital association authorities have in mind. I think these objects are exceedingly desirable and quite within reach. The advantage of having a complete hospital record such as Dr. Bottomley speaks of, not a long one, but a complete one, was illustrated to me in a conversation I had the other day with the superintendent of a large municipal hospital.

He received a telephone message one morning from a physician asking for the admission of a patient with a certain disorder, and stating that while he did not wish to dictate what the hospital should do, if possible he would prefer to have the man not put on Dr. So-and-So's service. The hospital superintendent had sufficient curiosity to want to find out what the

reason for this request was. He called the physician up later on and asked him his reason and the man replied that it was because of that man's record in his service, that in his opinion it was not satisfactory. The physician said that he had no personal feeling in the matter at all.

The hospital superintendent then called in the chief of staff of that department and told him about the case, asking him what he thought. He replied that he didn't think there was anything wrong and felt that the work done by this particular member of the staff had been generally satisfactory. The physician in question was then told of the affair and was asked about some of his cases. He became very angry and said that he was being persecuted; that his results were just as good as anybody else's.

Meanwhile the superintendent (who by the way, has a very wonderful system of complete records and who has a clerk, a man, who if he wants statistics of any kind can compile them from the records on hand), had asked the clerk to take the records of four men occupying similar positions on the staff, the man in dispute being one of them, and bring him these men's records of operations for three months, the character of the operation, the result, and the number of days the patient remained in the hospital, so that when this man came to him and said he was being persecuted he had definite facts to show that his death rate was high, and that the average length of stay of his patients in the hospital was longer than any other man's. He said if the man was not satisfied that he would take the records still further back. The man did not care to press the matter further.

The foregoing simply illustrates one of the advantages of a complete set of records and their value, because it would be of no use to go to a member of the staff and tell him his work is unsatisfactory because you happen to think so. You must have definite proof in order to establish a man's rating.

In addition, there is another factor which Dr. Bottomley brought out, and that is the question of the amount of time spent in the hospital on hospital work, which is always a pretty good index of the amount of interest which a man has in his work and probably of the conscientiousness with which that work is done.

It seems to me that this movement for hospital standardization, if it can be kept upon

the simple lines now proposed, will greatly expand and become a thing of immense benefit.

DR. H. B. HOWARD, Boston: Mr. Chairman, I do not think that this matter is quite as simple as you put it. The careful, politic man, if his record is being watched, can dodge a lot of operations he ought to do, and slide them over on the man who is willing to wade through anything, no matter what comes to him. You have to go pretty carefully in getting a man's record from going over a hospital record. If all men were made alike, that might be a considerably easier matter than it is at present. It is a rather complicated job to size a man up accurately from his hospital record. I can remember one occasion when such an effort came near working a great injustice to a very conscientious man who went right into everything without question, but he was doing just as careful work as anybody else. I just bring this up as a matter for thought.

I would like to add one thing more. If you had been in a hospital for a long series of years, you would know there are always certain physicians in the community who shift cases around before death occurs so that the death of the patient actually takes place under somebody else's care, and that, you know, sometimes helps in a way to make the records of men in this class appear good. The community is not a judge of that; it does not see it or know anything about it, but it occurs over and over again. A man out after a clean record can do a lot of work of that sort which may leave his record in better shape in some ways, but very bad in others.

DR. GAGE: I don't suppose we can always forestall the criminal, but most of the doctors in a community know who these men are who want to get a patient into a hospital to die, rather than outside. I think a man gets caught on his record that way pretty well—he establishes a record anyway.

DR. HOWARD: I do not think he does, as a general thing.

DR. GAGE: If the record is a complete one, it will show at the time of entry what the patient's condition was.

DR. G. DEN. HOUGH, New Bedford: At St. Luke's Hospital in New Bedford, a hospital of 250 beds, one of the greatest difficulties has been always to secure good internes. It is almost impossible to get internes who will keep proper records. In the last analysis it comes

down to this—that, not having absolute control over the internes, they will do exactly as they choose. Once in a while we get a man who will keep good records. Much more often we get the other type, who will not keep good records, and there is no way to compel them to do so; at least there is no way so far as we can discover. Now unless we get men who will keep proper records, it will be impossible for the hospitals to have the kind of records Dr. Bottomley refers to.

I have sometimes thought that with a sort of hospital association to keep tabs on the internes who refuse to keep proper records and who say that sooner than keep records such as we want they will throw up their jobs and go elsewhere, we might be able to control them and their travels to a certain extent. There are plenty of hospitals which are looking for internes and need more than they have, and as long as such a condition prevails, unless the hospitals can get together in the matter, there is no control over the internes and consequently no control over the records. Men who are practising medicine for a livelihood do not have time to keep the records of a hospital.

DR. BOTTOMLEY: With all due respect to Dr. Howard, I do not think his criticism touched the main point of the question. Of course, as Dr. Gage says, if a person is in the habit of dumping his moribund cases on the hospital, the hospital records will indicate that fact, and any just, intelligent committee looking over such records will be aware of it. I do not think it affords any argument against the hospital standardization plan.

It is a difficult thing to standardize hospitals; we all know that; but there are many practices and customs existing in hospitals today which I believe can be eradicated only through some simple method of hospital standardization. I agree with Dr. Hough that good record keepers are extremely hard to get. That is partly the fault of the visiting staff, I think. The average visiting staff shows a decided lack of interest in looking over the hospital records, and the interne receives neither instruction, encouragement nor training in taking records. Under the circumstances he is not wholly to blame for the poor records. I have made up my mind that hereafter I will not sign a diploma for any house officer unless his records are reasonably complete and correct.

In time we are going to get better house of-

ficers, because medical schools are going to insist on an interne service as part of the work necessary for a degree. Such service will count only when served in such hospitals as have accepted standardization, have lived up to its precepts and are rated as satisfactory. Hospitals which do not accept standardization are going to be rated as hospitals in which interne service will not count in work for a degree. This is going to raise the grade of the house officers and is going to increase their enthusiasm in their work.

THE ADMINISTRATION OF A MILITARY BASE HOSPITAL AND ITS COMPARISON WITH A CIVIL HOSPITAL.*

BY CHANNING FROTHINGHAM, M.D., CAMP DEVENS, MASS.

Lieutenant-Colonel, M. C., U. S. A.

MEDICAL men throughout the country are especially interested at this time in the work of the Medical Department of the United States Army. This fact offers an excuse perhaps for presenting a paper on the rather dry subject of the administration of an army base hospital. For it is not generally realized what medical problems are met with in these hospitals and how they are handled; and it may be of interest to some to have pointed out a few of the features of administration and to have their attention directed to wherein these features differ from those met in civil hospitals.

Although the Manual for the Medical Department of the U. S. Army outlines the main principles on which these base hospitals should be run, it must be borne in mind that the problems must vary between the base hospital at the front and those in the cantonments in this country. Furthermore, in many instances these hospitals are being administered by officers who have not had a previous training in this work or a knowledge of military methods. Therefore there is bound to be among the different base hospitals certain variation in their methods of administration. This description, therefore, will be limited to the methods of administration of the base hospital at Camp Devens, at which post the author has been stationed for some months. An opportunity was afforded the author to visit the base hospitals in three of the neighboring cantonments, and it was interesting to see how similarly the hospitals were admin-

* Published with permission of the Surgeon-General, U. S. Army.

istered in the great majority of matters, although the details of administration had been left by the Surgeon-General to the commanding officers to a great extent.

It is important for one to grasp what function a cantonment base hospital is supposed to fulfill because it differs somewhat from what the usual civil hospital does. The base hospital must be prepared to care for any type of case which may arise, be it acute or chronic, sane or insane, contagious or non-contagious, traumatic or in need of the advice of expert specialists. It may not confine its attention to some one or several types of cases as civilian hospitals may do. Of course, equipment to care for women and children is not needed and elaborate equipment for the special study of chronic disease is not called for, as these cases are transferred to special hospitals or discharged from the service. It seems needless to add, however, that the Government demands that the very best methods for diagnosis and treatment be employed in the care of its sick and wounded soldiers.

For descriptive purposes the administration of a hospital may be considered under three separate heads: the equipment with which to do the work, the people to do the work, and the money to pay for it.

The equipment of an army hospital, including the buildings, is provided the commanding officer through the Surgeon-General's Office. The hospital is constructed by the Quartermaster Department of the Army upon plans drawn up in the Surgeon-General's Office. The commanding officer of the hospital may or may not be consulted in the formation of these plans. The Quartermaster Department also provides for necessary repairs, etc., in the buildings. The commanding officer should see that attention is called to needed repairs. The commanding officer should requisition to the Surgeon-General for any additions to existing buildings or new ones that are desired for the hospital. The responsibility to see that no patient suffers for lack of proper facilities for treatment or diagnosis rests upon the commanding officer to the extent of his having endeavored to secure the needed changes.

The equipment of light, heat, water, hot and cold, and high pressure steam at the base hospital at Camp Devens is supplied by the Quartermaster Department, and all the commanding officer at the hospital has to do is to make sure

that any deficiencies in the service are reported to the proper authorities.

The furniture of the hospital, kitchen utensils, clothing for patients and enlisted men of the Medical Department, medical supplies and other equipment which is used in running the hospital and caring for the sick, come from three sources, namely, the medical supplies, the quartermaster supplies and the ordnance supplies. The War Department, through its subdivisions, decides how much of the various articles a hospital of certain size may have, and the commanding officer of the hospital must see that the necessary things are requisitioned for in time to be on hand when needed. Occasionally the needs of a hospital call for some special equipment, in which case the commanding officer should endeavor to obtain it by special requisition.

It becomes evident from this short description of the method of obtaining equipment that in the Army the hospital administrator requisitions for things which someone else has bought or planned for, and does not have to take up the cost of the articles, etc., in securing his equipment. This part of the work is done by other officers in the department. In civil hospitals the superintendent includes the purchase of articles and the decision as to which are best suited for the hospital in his duties.

The people who do the work in a base hospital may be divided into three main groups, officers, nurses and enlisted men. Occasionally a few civilian employees are permitted, but they may be grouped for simplicity as enlisted men. The main problem of the administrative officer or commanding officer, as he is called, is to see that the people of his command do their work properly, in accordance with the rules laid down by the War Department, the Surgeon-General's Office and his immediate commander. To accomplish this the commanding officer is made the ranking officer of the organization and responsible for what goes on in the command, professional and otherwise. It is his duty, therefore, so to organize his command that each officer, nurse and enlisted man has been well instructed and understands his or her duties, and that these duties are clearly defined. He must follow the work of the various officers in order to see that their work is properly done and that the medical officers' professional knowledge is adequate. He should also so organize his staff that he may receive from them

ideas in regard, not only to running their own part of the hospital, but also the whole hospital. Careful inspections should be made at frequent intervals.

Although the distribution of the work between the officers varies somewhat in different base hospitals, it is sufficiently similar to warrant going over in some detail the work of the various officers so that the medical profession may form a fairly accurate idea of what their fellow doctors are doing in this one part of the service.

The officers stationed at a base hospital may be divided into two groups,—those with professional training in medicine and dentistry and those without. Formerly all officers in the Medical Department had a professional degree, but the Sanitary Corps of the Medical Department has now been formed in which the officers need not have a professional degree. As many of the positions held by officers in a base hospital do not call for a knowledge of medicine, this is a great help in saving medical men for medical work.

The positions on the staff of a base hospital which do not require a professional man to fill them will first be considered. The adjutant is practically the commanding officer's private secretary, and takes charge of as much routine work connected with the administration as possible. Another officer, called the registrar, has charge of the preparation of all the routine reports in regard to patients, which are forwarded to the Surgeon-General. These reports are important in regard to awarding pensions and the like, but the preparation of them does not require medical knowledge. He also keeps the clinical records of the hospital in proper condition. One officer has charge of the enlisted men of the Medical Department who are assigned to the base hospital for duty. The detachment for a hospital of 1200 beds includes 450 men. The detachment commander must see that these men are clothed, housed and fed properly. He must also arrange their schedule of hours and see that they receive a sufficient amount of instruction in nursing and military drill, etc. The problem of feeding the patients and enlisted men assigned to the hospital is placed in the hands of a mess officer. For this purpose the hospital receives from the Government so much money for each patient per day and so much for each enlisted man assigned for duty. With this money the mess officer buys

food from the commissary or other sources, and prepares a regular diet for the men and several diets for the patients. In this latter work he is assisted by a professional dietitian. In addition to the money from the Government, he receives money occasionally from other sources, such as the hospital store, hospital garden, barber shop, etc., which allows him to enlarge upon the variety of the diet.

Mention has been made above of the Quartermaster Department of the Army. An officer of this department is assigned for duty under the commanding officer of the base hospital. He cares for the condition of the grounds and buildings, keeps the transportation in a proper degree of efficiency, and arranges for the supply of such quartermaster property as is needed and authorized. The clothing of the enlisted men, their beds, etc., and certain of the kitchen utensils furnish the greatest amount of quartermaster property used at the hospital outside of that used in keeping the buildings in condition.

Mention was also made above of Medical Department property and Ordnance Department property. In a base hospital there is very little of the latter and a large amount of the former. In this hospital the officer assigned to look after the medical property also keeps the records of the ordnance. This officer puts in the requisitions for and obtains the medical property used for the equipment and running of the hospital. He then distributes it among the officers of the hospital, from whom he receives a receipt for that property over which they have supervision. This officer must have some idea of the amounts of different articles allowed by the Government in order to guide the officers in their requisitions for and use of medical property.

The chaplain is an important officer in a base hospital, for, in addition to giving spiritual comfort to the patients, he may be a tremendous factor for good among the enlisted men of the detachment. He will organize them for social and athletic purposes, arrange classes for instruction and act as guardian and advisor for them, in addition to such religious exercises as he may conduct.

One position, that of officer of the day, might be mentioned at this point. The position is held for only 24 hours and the incumbent changes daily, being appointed from among all junior officers of the command in turn. The officer of the day acts as a representative of the

commanding officer, and is expected to be aware of all the activities of the hospital and see that they are going on properly during his tour of duty. All extraordinary circumstances should be reported to him and he should take charge of any situation which might arise until the commanding officer or his representative appears. The officer of the day has charge of the guard.

Turning now to the officers who need for their duties a professional training in medicine or dentistry, we meet that part of the staff which corresponds to the clinical staff in our civilian hospitals. This part of the staff is divided for administrative purposes into three groups,—the medical service, the surgical service, and the laboratory service. Over each one of these services is a chief, who, with the others and the commanding officer, form the executive committee of the hospital. The chiefs of these services are designated by the Surgeon-General and are not of necessity the senior men in military rank, but are chosen for their professional or executive ability. The medical service comprises the general medical service, the neuro-psychiatric service and the skin and syphilis service. Each one of these services has a chief. It is customary to have the chief of the general medical service act as chief of the whole medical service, and such is the case at this camp. The surgical service comprises the general surgical service, the oto-laryngological, the ophthalmological, the orthopedic, the genito-urinary, the x-ray, and the dental services. For each of these services there is also a chief. The chief of the whole surgical service is at this hospital also the chief of the general surgical service, but he may be the chief of any of the subdivisions of the surgical service, and I understand is in other cantonments.

The laboratory service undertakes all the clinical pathology of the hospital and such other laboratory work as it may be called upon to do in general bacteriology, pathology or chemistry. The concentration of the work in clinical pathology is apparently quite at variance with the custom in civil hospitals in recent years, where attempts have been made to multiply the number of laboratories and place them readily accessible to the wards. The small number of men, however, capable of doing expert clinical pathological work in a base hospital, makes it more desirable to have one central plant. The amount of this work done, however, should not

diminish on account of the single laboratory, as all that it is necessary for an officer to do in order to have any test done, is to sign a slip of paper and send it to the laboratory. Actual experience at Camp Devens seems to show that the cases are very completely worked up from a clinical pathological point of view.

The position of chief of service is to a certain extent executive in that he must arrange for the diagnosis, care and treatment of the cases assigned to his service. He acts as a consulting physician to those officers under him in more intimate contact with the patients. If the service is large enough to warrant it, one or more assistants to the chief may be appointed.

The actual care of the patient falls upon the officer designated as a ward surgeon. This officer has one or more wards of thirty-two beds under his charge. This officer takes the history of the case, makes the physical examination, orders the clinical pathology done and outlines the treatment. This officer also is responsible for the work of the nurses and enlisted men on his ward, for its proper appearance and for the care of the property loaned to it by the Government. If the supply of officers is sufficient an assistant to the ward surgeon is appointed. This is necessary on some of the wards in which many serious or acutely ill patients are present.

The need is felt in this base hospital for recent graduates in medicine who could act as assistant ward surgeons or ward surgeons and do the work which corresponds to that of a house officer in civilian hospitals. It would be well if some arrangement might be made whereby graduates in medicine should take their hospital work in an army base hospital. It is realized, of course, that the civilian hospitals must not be stripped too bare of doctors to do this work.

Before turning from the officers to the nurses, mention should be made of the receiving officer, the sanitary officer and the convalescent officer. These three positions require medical knowledge but have not been grouped definitely with any one of the clinical services. One officer is designated as the officer in charge of the reception and discharge of patients. He has several assistants, and is responsible for the admission of patients throughout the twenty-four hours, and must have someone on duty all the time. The problem of admission of patients in a base hospital differs somewhat from that in

civil life in that suddenly a large number of cases, up to several hundred, may arrive for admission at the same moment.

The sanitary officer, as the name implies, is a medical officer whose duty it is to inspect the hospital and surroundings, to report on sanitary conditions, and make suggestions for their improvement.

The convalescent officer is the name applied to that officer who has charge of the convalescent patients from all the various services who are advanced enough in their convalescence to begin moderate work. As the patients must stay in the hospital until they are able to return to full duty, they stay a longer time than is the custom in civil hospitals. During the latter part of their convalescence they are able and should indulge in exercise and training so that they may gradually work up to full duty. One officer is put in charge of these cases and outlines their work according to the patient's ability. He has as many assistants as the number of patients demands.

The nursing at a base hospital is carried out by female trained nurses and ward masters. The nurses are all graduate nurses and are under the supervision of a chief nurse, to whom is left the assignment of the nurses for their work. The chief nurse is provided with clerical assistance by the Government and the Government also provides the nurses with certain civilian employees to help in their kitchen and care of quarters. The lack of student nurses is felt by one who is used to working in a hospital with a training school for female nurses. It is understood that the War Department is planning a training school in some of these base hospitals.

The enlisted men of the Medical Department who are assigned to the hospital detachment, and a few enlisted men of the Quartermaster Department, make up the force by which the work of the hospital is done. These men are organized with non-commissioned officers in charge of them and assigned to various jobs. In so far as possible, a man is assigned to work for which he has had some training, but of course, this is not always possible, and men have to be trained for their new positions. Occasionally a civilian may be employed as a cook or for some special work, but only in very rare cases.

Before leaving the description of the various persons who do the work at a base hospital, one point of marked difference between an army

hospital and a civilian hospital should be emphasized, and that is that neither officers nor men are in a position to quit their work if they do not like it. In this way the commanding officer is not embarrassed by having to take into consideration the whims of the employees in running the hospital.

In taking up the third feature in the administration of an army base hospital, namely, the money to pay for the running of the hospital, one finds conditions quite different from the civilian hospitals. No money passes through the hands of the commanding officer except the money allowed to buy food for the patients, nurses and enlisted men. The Surgeon-General arranges so much of supplies for equipment and running of the hospital and so many men to do it, and the commanding officer distributes and uses these factors, but does not have money with which to buy supplies or hire men. If more men or supplies or buildings are needed they are requisitioned for, or special permission is asked to spend a certain amount of money for some certain thing. Even in the latter case the bill is paid by the Government after proper authority is granted.

Certain special features in regard to an army base hospital, although not strictly administrative, should be mentioned in a description of this sort.

The fact that the officers are on duty the whole time offers an exceptional opportunity to concentrate upon a given case a remarkable amount of professional ability, including various specialists, at a moment's notice. On this account errors of omission to exhaust all possibilities in diagnosis and treatment are considered much more serious than errors due to mistakes in professional judgment.

The opportunity to insist upon autopsies in every case that dies is, of course, exceptional. Unfortunately, the War Department has not availed itself of this chance. Although deprived of this opportunity to advance the knowledge of the officers and medical science, the opportunity to study cases until they are completed does exist. For, as the patients are subject to military control, they can be returned to the physician until treatment has been satisfactorily completed. This is of special interest for the venereal cases.

The records of an army hospital and the continued presence of the patients under military control offer a splendid opportunity for the de-

velopment of a follow-up system. From such a system a considerable mass of material of medical value should accumulate, and it is to be hoped that special medical officers be assigned for this important work.

In each hospital there is a small store which sells a variety of articles such as food, toilet articles, some clothing, stationery, etc. This store, called the Post Exchange, is managed by one officer in addition to his other duties. The proceeds of the store are used for the benefit of the enlisted men and the patients.

The American Library Association has sent to this hospital a librarian, who is on duty throughout the day. She has organized the distribution of books to the patients throughout the wards and arranged, with the aid of equipment furnished by the Association, an attractive reading room for officers, nurses, enlisted men and patients. Another building which was on the grounds has been turned into a club house and library for the use of the officers, thanks to the generosity of the wife of one of the officers.

It would not be proper to close a report on the administration of a base hospital without calling attention to the excellent work that is done by the Y.M.C.A. and the Red Cross in regard to aiding in the comforts and pleasures of the enlisted men and the patients at the base hospital at Camp Devens. Both organizations have erected buildings for the soldiers. In one, the Y.M.C.A. building, is the center of social activity for the detachment, and in the other, the Red Cross building, there is the recreation room for convalescent patients. In addition, the Red Cross is extremely helpful in supplying quickly things, which green officers, due to their inexperience, could procure only from the Government after considerable delay.

DISCUSSION.

DR. R. B. GREENOUGH, Lieut.-Commander, U.S.N.R.F., Boston: I think the members here may be interested to know something of the administration of a naval hospital, that they may judge how far it differs from that of an army hospital, such as has been described by Colonel Frothingham.

The general organization is very much the same, the administrative officer in a naval hospital being called the executive surgeon, and

corresponding closely to the adjutant in an army hospital.

Before the war, at the naval hospital in Chelsea there were generally four surgeons on duty besides the commanding officer. We now have about twenty. Each department has a chief of service and as many ward officers and junior assistants as are needed. In that connection the Navy has done something for which it has, perhaps, been criticized, but which I consider very wise. It was decided to forego the year's hospital service formerly considered advisable before a surgeon was admitted to the service, and a condition still required before entrance to the Medical Reserve Corps of the Army. We have taken the 1917 and 1918 graduates directly into the service and put them on duty as house-officers in the naval hospital, and have worked with them, and instructed them in the matters we considered to be of most importance. Last year we had an assignment of thirty-seven junior medical officers at the naval hospital in Chelsea, and many of them have been working purely as house officers for over a year. These 1917 men are now being sent out on sea-duty and are better equipped to do our work than if they had come to us after a year in a civil hospital. There is no question but that a very considerable period of time must be spent by the civil surgeon or physician in learning the military side of his profession before he can make himself useful in the Army or Navy. He has got to have a thorough knowledge of the military end of the work or he is greatly hampered in his own activities.

The general administrative end of the hospital work is carried on almost completely by commissioned and non-commissioned officers, under the executive surgeon. The ward officers are as free from anything having to do with the providing of food or equipment as they would be in a civil hospital.

It would be quite wrong, I think, to fail to speak before such a gathering as this, of the impression that the hospital corps of the Navy has made upon me. I won't attempt to say what the condition of the enlisted men in the Army medical corps may be, but in the Navy the men are taken almost always from civilian occupations in which they had to do in some way with medicine. Some have had hospital training; others have been pharmacists or have worked as helpers in drug stores, or have been connected

with medical work in some way. I want to say that I know of no group of men who have so impressed me with their earnestness and ambition to improve themselves. It is a great training school at the hospital in Chelsea. Not only are the men given formal and informal clinical instruction in the wards; they are working all the time and looking forward to the next opportunity of getting an increase in rank, and the rapidity with which some of the men who have enlisted in the lower ratings in the hospital corps have advanced to higher and responsible ratings is astonishing. I know of few places where merit is more promptly recognized than in that corps.

There is a regular nurses' corps in the Navy, but since the expansion in the personnel it has been necessary to call upon the Red Cross, and we now have many Red Cross Navy nurses also. In our forty bed wards we have at least two female nurses in the daytime, and usually two of those wards are carried by one nurse at night, irrespective of such special nursing as may be required.

The main work of the hospital, however, is done by the men of the hospital corps, about four or six to a ward.

One point to which Dr. Frothingham has alluded as a very important feature of the work of military hospitals, and one that does not exist in civil hospitals, is that the patients must be kept in a military hospital until they are ready to go back to active duty. If the period of convalescence is brief the patient is given a light detail of work about the hospital, such as helping in ward work, sweeping and polishing floors, orderly service, and work out doors about the grounds. Such patients are also given shore liberty after 4 p.m., when such privilege is warranted. A considerable portion of the constant cleaning and polishing of the hospital is performed by patients of this class, and the plan serves to give them exercise and occupation as well as to get the work done.

On the other hand, where the convalescent period is longer, leave to go to home or friends can be procured. For instance, a man comes in and is operated upon for hernia. It is obvious that, although at the end of two weeks he may be up and about and able to walk freely, the man is not fit to go back on duty until at least six weeks have elapsed from the time of the operation. If he lives near the hospital he can be given sick leave and allowed to go home.

On the other hand, men living at a great distance may be quite unable to go to their homes for the relatively brief period of their leave, and they would have to stay in the hospital and wait until they were fit for duty, if it were not for the fact that a number of men and women outside of Boston have been most generous in offering the hospitality of their homes to boys under the conditions I have just described. This is a very great advantage to the boys and to the hospital. I am glad to say that we now have plenty of places to which we can send such cases as can avail themselves of this privilege, and I do not want this to be taken as a hint to procure additional places. But I do wish to acknowledge the great assistance which has been given to us by public-spirited people in this community.

DR. GAGE: I would like to emphasize one point in Dr. Frothingham's paper because it has to do with hospital standardization and the keeping of records. Every consultation held in an army hospital has to be recorded, so that if in any case anything does not come out right and an investigation is made, unless the record shows that these consultations were held and that the proper attempt was made to do everything that was necessary in that particular case, if the surgeon did not use every means available to help that case, he must suffer the consequences. An error in judgment is not, however, held up against the surgeon, as Dr. Frothingham said. But it is right there in the record—if these necessary consultations were not held the record shows it. Every time that one of the chiefs of staffs is asked to consult he has to write the report out and it is incorporated as a part of the record, and, further, after that case is ready for discharge he has to go over the whole history and o.k. it. He is made absolutely responsible for every bit of that record and on it he has to stand. That ought to be just as applicable to civil as to military hospitals.

THE NEED OF SYSTEMATIC TEACHING OF HOSPITAL INTERNES.

By EDWARD H. BRADFORD, M.D., BOSTON.

THE importance to a community of a well-organized hospital is generally recognized. Its value depends upon the amount and the quality of the service rendered. The hospital in its

establishment takes upon itself an obligation which it should constantly strive to fulfill.

All hospitals are debtors to those who support or found them. Those entrusted with the management and direction of these institutions do not fulfill the trust undertaken if they remain contented with simply a well-ordered institution, caring for the comfort of the patients committed to their care.

Faulty organization, inefficient supervision, incompetent direction, divided or misplaced authority, lead to waste of energy, no less blameworthy, though less apparent, than waste in expenditure or increasing annual deficit.

An expert in the management of corporations can readily recognize defects in railroads or industrial organizations not observable by the passenger or the purchaser of the product. In the same way, the average man of affairs, though familiar with industrial enterprises if entrusted with the responsibility of a hospital directorship, finds himself uninformed as to the special problems of hospital oversight. Nor does the doctor, trained in the observation of disease, and the care of patients, receive the education in the efficient management of a complex industrial organization with coöperation through differing departments. The hospital superintendent, trained though he may be by experience in the careful conduct of his institution, is held close to the work of efficient and economical direction, and rarely appreciates fully the importance of the hospital as an educational center. Discipline and clean bed linen task his abilities and demand for excellence in a large hospital the greater part of his time. Like Martha of the Scripture, he is busied with many things.

In the comfortable time of peace, when prosperity fostered acceptance of the existing order of things, the need of reforms is less easily made evident than when the stress of events demands an economy of every effort.

The duty upon the hospital as an educational center, though often referred to in appeals for contributions, has rarely been fully accepted by hospital authorities. They have contented themselves usually by leaving such matters to the medical staff, or attaching themselves (by affiliation or association) to a neighboring medical school without carefully considering the subject. In some cases they dodge the issue, contenting themselves with their excellence in

the care of the present sick, without a regard for the good of the sick of the future or of those outside their jurisdiction.

In order that the importance of this aspect of hospital work may be understood, it may be well to call to mind the development of hospitals in the last fifty years, in community life.

Formerly the hospital, the hospice, limited its work to the care of the unfortunate, the discarded of society which a charitable sentiment desired to aid. This relic of the traditions of feudalism fortunately still remains, but it is crowded out in these days of efficiency, by the matter-of-fact idea that health is a business asset to a community. Doctors are needed as are production engineers. Sickness, like the slum, like ignorance and idleness, is a drag on progress. The practical business of curing the sick and preventing disease must be speeded up in every up-to-date community—Health and sanitation pay.

Formerly medical schools did the teaching of doctors. Research was done in laboratories by the zealous searchers after truth, and experience tested the value of investigation. Benefit followed.

But this system is manifestly inadequate to meet the pressing needs of the time. Many of our medical schools even are poorly equipped to instruct in the actual observation of disease, and laboratory research workers in the advance line of science are rarely equipped to inform as to the relief of the aches of patients suffering from atypical and unclassifiable ailments, trivial scientifically, but disabling to the individual. Many hospitals do not think of teaching young doctors; they simply work them as unpaid help.

In the early days, when medical apprentices rode with their preceptors, aiding masters of the art, they were trained in the practical application of accepted measures of relief. The pupil became handy with the tools of the art, and in the excellent school of graded and gradually increasing responsibility, he became in time a master craftsman.

But today, it is evident that the student, though instructed fully in all the branches of use as foundation for medical work not having received the training from responsible charge, needs further experience. He must not, however, be allowed to learn from his own

mistakes of inexperience in treating the sick. He requires careful supervision in his work.

A student who has never fully realized that a mistaken diagnosis or an error in treatment may threaten himself personally with professional ruin, discredit or disgrace, is not adequately prepared for the practice of his profession. Responsibility is the best of teachers.

It is for this reason that the hospital year is demanded by the Army and Navy, by the registration boards of many states, as requisite for a license to practice or for commission in the Army Medical Corps.

It is a required minimum of apprenticeship, and a recognized necessity in medical training. The would-be swimmer has not learned to swim, if taught only on dry land. The workman needs to know more than a knowledge of what can be done with tools.

This important development in the training of the young physician brings with it added responsibilities,—to the medical school, the hospital, the medical profession, as well as to boards of medical registration.

The medical schools should educate with the purpose of fitting graduates for efficiency in hospital service. Excellence in this will gain for their graduates preferred chances in hospital appointments. The schools should provide opportunities as far as possible for hospital services for all who are competent to graduate. This, though an easy task for the abler students, is more difficult for the men of moderate or lesser ability—though of earnest and trustworthy capabilities. This work, necessary for every medical school, is as important as any of its educational functions. It can, however, be done only through the close coöperation of hospital and school.

The question of providing the best possible training for the interne is a most difficult one, for several reasons. The interne has passed the age of pupillage, and spoon-fed knowledge is injurious. He should have cut his medical eye teeth, and needs the tougher pabulum of experience, rather than the more assimilable diet of the words of the master.

But experience involving responsibility in dealing with the sick should not be permitted beyond the range of adequately trained ability of judgment. This involves the supervision of the hospital administration as well as of the

chiefs of medical or surgical authority. The difficulty of divided authority results. The hospital superintendent must see that the rules of the hospital, protecting the rights of the patients, are observed. The chief of service will see that his directions for treatment are carefully obeyed. His orders cannot be blocked, changed, or exceeded. In the stress of an excess of work, the duty of systematic educational guidance of the interne is usually overlooked.

Many chiefs of service take pride in developing their internes, but many, in fact most, are untrained in the art of teaching, or are busied in the details of work. If investigators, they are usually interested in more advanced researches, than are suitable for the beginner in the art of practice.

The surgeon zealously studying the question of the best method of approach in the operative cure of trifacial neuralgia is a poor guide for the young man who needs experience in the simpler but important questions of the careful dietary of the fatigued or the underfed.

The interne, left to his own resources, learns something, but the community does not gain the amount of advantage at the end of the interne's year, of as well trained a hospital graduate as it needs, or as the wealth of experience contained in a well directed hospital could furnish to assiduous and well prepared young medical men. Frankly stated, the interne gains only a smattering of the knowledge of experience, comparable to the imperfect and inadequate medical theoretical knowledge formerly given in the despised proprietary schools.

Manifestly a needed reform today is in the regulation of the hospital education of the interne. This can be obtained, owing to the divided responsibilities of the interne, only by the combined effort of a hospital authority and medical educators.

The medical school limiting the size of its class and arranging with a closely associated hospital directed by school professors, can provide for the instruction of its annual output of medical graduates. It can require adequate standards for hospital service.

But highly endowed medical schools, in duty to the trust of their endowments, are hardly justified in limiting their output to a point below the needs of the community or their bene-

factors, and no one properly conducted hospital, if of civic character, can annually change its personnel to the extent of employing from 100 to 200 graduates of varying ability.

If the graduating class is large and varying in numbers each year, it is difficult for a medical school to arrange with a group of associated hospitals standardized service offering equal quality of educational opportunities. The internes will not receive the same training in different hospitals. This is an injustice to many excellent students not fortunate in the chance of hospital appointments. If the medical school requires, before giving its final degree, an examination after the hospital year, the inequalities of hospital service will create a hardship. If an examination is not required, the requisite academic standards of the school degree are impaired.

The coöperation of hospital authorities is manifestly necessary in every movement for the better training of internes. Various plans suggest themselves for providing for this, but the problem necessarily varies with the character and capabilities of the hospitals, as well as their location and their relation to medical schools, and the excellence of those schools.

Of great advantage would be a carefully arranged statement of the opportunities of experience needed in a standard hospital and of the character of the work demanded; an interne's manual, prepared by educationally competent hospital chiefs of service, in coöperation with an experienced hospital superintendent.

Arrangements should also be made for regularly conducted and well directed conferences of the internes with the chiefs of service and hospital superintendents.

There is an unquestioned need of a standardization of hospitals, and a classification according to the varying opportunities of their services. This can be conducted by a committee representing medical schools, licensing boards, or by a medical association.

The remarkable achievement of the American Medical Association in improving the standard of medical education, the recent investigation undertaken by the American College of Surgeons, exemplify what can be accomplished by systematic efforts wisely undertaken and earnestly carried out.

It would, perhaps, in the present stress of war times, when hospitals are strug-

gling to meet with inadequate force the increasing demands which come upon them, be unwise and unjust to take any steps towards improving existing conditions.

Such an opinion, however, should not prevail, for the very reason of the existence of the war, with its demand for every effort to promote economy of energy, and complete utilization of every opportunity.

Trial reveals weakness and need forces thrift. These are the advantages of adversity which the wise utilize.

SUMMARY.

The government needs well qualified young physicians and demands a year of hospital service. This secures to the hospital a certain supply of young medical officers.

In return, the hospital should arrange that residents receive systematic instruction during their year of service. To provide for this the following requisites must be secured:—

1st.—Systematic instruction from the hospital authorities and staffs.

2nd.—Authorized conferences on hospital cases.

3rd.—Condensed and systematic case records.

4th.—An arrangement of hours of work permitting time for study.

5th.—A coöperation on the part of hospital authorities with medical educators, and supervision by state licensing boards of medical education to secure proper hospital standardization.

The demands of the community for properly trained medical practitioners require practical hospital training in addition to adequate medical school instruction. This throws upon hospitals an added responsibility; that is, the maximum of hospital educational opportunity.

DISCUSSION.

DR. GAGE: This subject is one which is coming up in connection with hospital standardization and the present position of the interne is a good deal like that of the pupil nurse in the training school who is sent outside to earn money for the hospital. That is, the interne is used for the benefit of the hospital without getting a nearly adequate return. I think we have all experienced the difficulty in getting internes—I certainly know I have for the last few years. I think the position of the interne might very

profitably be made a little higher than it now is and that a good deal of the drudgery which he now does could be put upon permanent clinical clerks. The routine work could easily be done by such personnel and in that way the interne could be freed from a great deal of the work that is uninteresting and unimportant. In that way, too, he could have more time for the really important sides of his work. For instance, he might be taught the art of history taking, so that he could do that well. The average practising physician has not always a good idea of how to write up a history. The interne can learn how and is much more ready to learn than the older man, who considers it entirely unnecessary. I think that this subject is one of great importance and worthy of the consideration of the Society.

SOCIAL SERVICE AND FOLLOW-UP WORK.

BY RICHARD M. SMITH, M.D., BOSTON.

THE activities of the modern hospital are manifold and are constantly changing and enlarging. It is no longer considered that the hospital has done its entire duty to the patient in attempting to make a diagnosis or in writing a prescription or in performing an operation. The purpose of the hospital is to diagnose and cure the malady with which the patient is afflicted. If we limit our interest entirely to the patient as he presents himself in the hospital, we find that frequently we are unable to make a satisfactory diagnosis. If, however, we are successful in this first part of the work and an operation is advised or a line of treatment suggested we discover that the benefit we sought to accomplish often does not follow. But if it happens that we are successful even thus far and relief is obtained, the complaint may recur, and the patient presents himself again for treatment. Therefore, purely from the professional point of view, we have failed at one or another stage of diagnosis or treatment. From the economic point of view, the hospital money has been wasted. From the point of view of the patient, he is where he was before he went to the hospital, and in many instances worse than he was before his first visit. He is discouraged because of the return of his trouble and because of the financial loss involved in the first treatment.

We realize now that the diagnosis and cure of diseased persons demand that the hospital extend its activities beyond its four walls. It must consider the causes of disease and study the means of removing these causes or of making them inoperative for that particular individual. The hospital must then, if it is to accomplish the thing for which it was founded, become interested in the prevention of disease. As soon as interest is aroused in this matter—and few fail to appreciate its importance—we discover that again it cannot limit itself to a study of bacteria or of chemical variations or yet of cell metabolism. These are extremely important matters and must be thoroughly investigated with reference to each patient, but they do not encompass the whole problem of disease. The individual cannot be detached entirely from his surroundings.

The environment in which he lives and in which disease has developed must be considered also, in many instances, if an accurate diagnosis is to be made. This social background must be studied and modified if a permanent cure is to be effected.

The facts in regard to the living or working conditions of the hospital patients, the social service worker furnishes to the physician or surgeon. In the majority of instances it is impossible for the doctor to make proper investigations of this sort for himself. In private practice these facts either are obtained by the doctor or, in many instances, are already known to him because of long acquaintance with the family. Environment is quite as important here as in the hospital. Most physicians find themselves floundering in the slough of despair many times a day in attempting to adjust the difficulty in home or business which is recognized clearly as a controlling factor in the patient's proper treatment. And what physician has not had a difficult diagnosis suddenly made clear by a new bit of information about the patient's life or habits? In the hospital, the patients come without anything being known about them other than the fact that an individual is present with a certain number of complaints. The picture is impersonal. The background must be painted. For a complete understanding of the situation and finding the proper solution not only is it necessary to consider the pathological condition present but it is essential also to recognize the influences which have been at work in the individual's life and which are

to continue to operate after he leaves the hospital. The methods by which the unfavorable facts in his environment are to be modified or eliminated, as well as the discovery of these facts, is the part of the cure contributed by the social service worker.

The advantage of thus socializing or humanizing hospital practice is not confined to the doctor. It has its effects also upon the patient. The patient is made to feel by the kindly interest of the social service worker that the hospital is more than an institution and the doctor more than a part of a feelingless machine. Many times the consent for an operation or the willingness to follow advice is dependent solely upon the confidence in the word of the social service worker.

It is of interest to record that the expansion of our military and naval hospitals due to the present war has brought to these institutions the realization of the need of social service workers. The Naval Hospital at Chelsea has already established a trained social worker, and others are adopting the same practice.

It will be seen from this statement of hospital social service that the work must be done in the closest coöperation with the physician. If the social service worker makes her investigation of the patient's social history independent of its medical connection, she will not obtain the facts the physician desires for an accurate diagnosis, or if she tries to modify his after-hospital life without careful directions from the physician in charge, she will not accomplish the things which are essential for his recovery. The social service worker is really another set of eyes, ears and hands to carry out the work of the physician in making a diagnosis and accomplishing a cure of the individual patient.

The success of social service work depends upon careful medical work, since the plan for the patient must be adopted in accordance with the true state of the patient's condition. Not infrequently the social service worker is insistent upon a detailed statement by the doctor when such a statement is difficult to make. This is an uncomfortable situation but is of advantage to the doctor and to the patient. The social service worker may be of distinct assistance in requiring the doctor to be specific in his diagnosis and definite in his directions for treatment.

A hospital may deliberately omit to install an expensive piece of apparatus, such as an x-ray machine or hydrotherapeutic outfit because of the financial obligation, and yet may give to many patients a perfect diagnosis and adequate treatment. For the number of cases requiring x-ray examinations or hydrotherapeutic treatment compared with the total number of patients in a hospital is relatively small. A hospital may limit the kind of cases admitted by omitting certain specialties, such as orthopedic diseases and children, and yet do one hundred per cent. perfect work for those patients admitted. I venture to say, however, that the absence of a proper social service department limits the efficiency of diagnosis and treatment in all but a small number of cases admitted to any hospital, *i.e.*, a failure to consider the patient's home, occupation and environment prevents one hundred per cent. perfect work in the majority of cases, even though the kind and number be carefully limited.

It is, of course, inevitable that in the investigation of individual patients the social service worker will become involved in many broad social problems which demand correction in order that the patient and others like him may be spared from the recurrence of the disease with which he is afflicted. This part of the social service worker's job demands from her initiative and constructive thought and action, frequently independent of consultation with the physician. The proper solution of the social problem, however, out of which the medical condition has arisen, demands in many instances medical leadership. In this field also the doctor must be ready to offer assistance and advice.

Social service has come as a part of the hospital equipment in response to a need for help felt by the medical staff. It is making its contribution to the discovery of the causes of disease and to the methods of cure. We can as little do without it as without the use of our eyes and ears in getting the medical history or for the examination of the patient, or our hands in writing a prescription or using a scalpel in effecting a cure.

Another function of the social service department which has been increasingly appreciated is the help which can be given in facilitating the discharge of patients from the wards, especially when they are not able as yet to re-

turn to their homes. This is particularly true with patients requiring institutional care, either in chronic hospitals or hospitals for special diseases as tuberculosis. If all the beds in a hospital for acute cases are allowed to be filled with cases of chronic disease, the usefulness of the hospital to the community and to the Staff is materially curtailed, and its output relatively limited because of the small number of patients to whom it can minister. The social service worker is able to see that patients ready for discharge are transferred promptly to their homes or to other institutions or to whatever place the physician may decide is the suitable one for further treatment.

It is also possible through the social service worker to follow up cases after their discharge from the hospital in order that the patient may report again to the hospital for subsequent examinations or perhaps for further treatment, and also to see that the treatment advised at discharge is accurately carried out. A brace for the back which is hung on the wall in the kitchen cannot do much toward correcting a curvature of the spine.

Another important duty of the social service worker is to see that patients given appointments in advance either for admission to the ward or for the out-patient department come at the appointed time. This, so far as the ward is concerned, prevents beds remaining vacant for any period of time waiting for patients to be brought in, and in the out-patient department makes a continuity of treatment possible which is ordinarily not accomplished, if the patient is left to his own resources to report at a given time.

The machinery of this follow-up work may be modified to suit the needs of the various hospitals, but some card system is essential in every case. For its successful operation two things are necessary. First, the careful directions or instructions from the hospital as to what is needed for the patient or that appointments are made; and second, some one who can go to the patient and see that the things are done. The doctor does the first and the social service worker does the second.

There are two points which it seems to me most important to bear in mind in connection with any social service department. In the first place, the work is primarily and essentially to be done with the leadership and coöperation

of the medical and surgical staff. The problems involved are medical and social problems. It is necessary for the doctor to follow the work in detail if the best results are to be accomplished. In the second place, it must be recognized that a social service worker requires special training. It is necessary to know how to get essential medical facts out of a social history and how to deal with the social problems in the community which affect the individual patient. The worker must be familiar with the resources of the community available for treatment and must be able to use these resources to advantage. Training as a nurse may be advantageous, but whatever preliminary training the person may have had, the responsibilities of a social service department must be given only to individuals who have had training and experience in this particular field. If these two facts are borne in mind the development of social service in any particular hospital will be saved from many pitfalls which will otherwise surely come.

DISCUSSION.

MR. MICHAEL M. DAVIS, JR., Boston: Dr. Smith has spoken of the contribution of social service to the hospital. I think there is one misconception which sometimes interferes with the development of social work in hospitals and that is its relation to physicians. To my thinking social service in a hospital has primarily a medical function and its essential reason for being in the hospital is to help to achieve medical efficiency in the diagnosis and treatment of disease.

When social workers were first employed it was sometimes thought that the first and most important requisite for this work was a kind heart. As Dr. Smith has pointed out, it is now generally recognized that a good part of the work is such that it requires special training in dealing with people and in getting at the facts, such as occupations, income, and other more personal matters. The social worker must also be trained in knowledge of the way to get things done, what the community resources are for properly placing a patient in a certain kind of institution; how to get a man another job or change his present one for the sake of securing better working conditions.

To get such a worker or workers requires money. Today we have difficulty in getting

any kind of trained assistants for any money, but even today I will undertake to state that a hospital without social service is wasting money. I think it will be worth while to take a few minutes to speak of the economic side of the question, namely, the effect on economy of hospital management of having a good social service department. Dr. Smith has spoken of some of the direct medical effects, such as securing proper after-care for patients who need convalescent care, seeing that they are properly placed so that their bed can be freed for another case. That is a job which often requires the assistance of the social worker. If a hospital bed on the average can be emptied for a certain type of case three days sooner than would otherwise be the case, that would make quite a difference financially in the course of a whole year. It might increase the capacity of the hospital by ten to twenty per cent. without any additional beds.

Every physician is familiar with the ease that stays on and cannot be gotten rid of. The ward sometimes has to be cleared by main force, but there are dangers to that and the patient sometimes returns. There was one case in a well-known hospital where a woman patient came back a number of times, in fact five times. Between the fourth and the fifth admissions a social service department had been established, and the department at once made an investigation of this case. It seems that there were five children in the family, living on the fourth floor of a tenement, and the mother was doing most of the work. Her diagnosis had been cardiac disease, and the explanation of the woman's recurrent returns to the hospital was pretty obvious. The superintendent studied the matter and figured that these re-admissions over a period of three years had cost the hospital \$600, which would have been enough to pay the salary of a social worker for over six months and would have saved the patient quite a good deal, incidentally. That hospital considers that report as rather good evidence that social service pays.

In cases requiring after-care,—the case of chronic ailment,—the patients who need convincing to make them take proper treatment or undergo an operation, the ease of the half-sick person requiring periods of care in the hospital or out-patient department, it seems to me that it is well to bear in mind that the func-

tion of the social worker is largely a function of finding out the facts. Patients like you and me are usually ready to do something for their own benefit. But sometimes there is a hidden obstacle. Take the case of a woman who was told after a period of observation in the hospital that she needed an operation. She refused to have it, and for a time it was impossible to find out why she would not have it. An investigation by the social worker brought out the fact that her family of children was dependent on her and that the father was a drunkard. Should he go on a spree during her period in the hospital her family would be broken up. She would not take that chance. The solution of the problem lay in careful work with the family to find some means of covering the situation with the aid of a friend or relative or some helper who would give the mother assurance that while she was in the hospital her family would be looked after. I mention this actual case merely as an illustration to show what can be done by social service in getting results.

The practical question of cost is usually dealt with in a hospital about to establish a social service department by appealing to the humanitarian element. A group of people interested in the hospital are asked to help and the appeal is made to them on the basis of helping the poor, of giving the patients a social worker who will render them kindly services. This is well, but I do think that we perhaps underestimate the effectiveness of the strictly business appeal on the basis of a direct contribution to medical efficiency because of the proven value of social service in actually making a given hospital equipment go further, and do more as well as better medical work.

Original Articles.

HEARING TEST TO DETECT MALINGERING.

By JOHN F. CALLAHAN, M.D., BROCKTON, MASS.

A NUMBER of young men have consulted me since the beginning of the draft for certification of lack of hearing in one ear, the certificate to be used in support of the claim for exemption on the ground of deafness. In many of these cases there was no real loss of hearing,

and at times this was very difficult to demonstrate by the routine methods because the regissant would feign deafness so intelligently that the older methods could not be applied satisfactorily. In order to make a just decision in cases where I was not certain of the patient's honest coöperation I evolved the following technic which has proved of great value, and appears to be absolute in its findings.

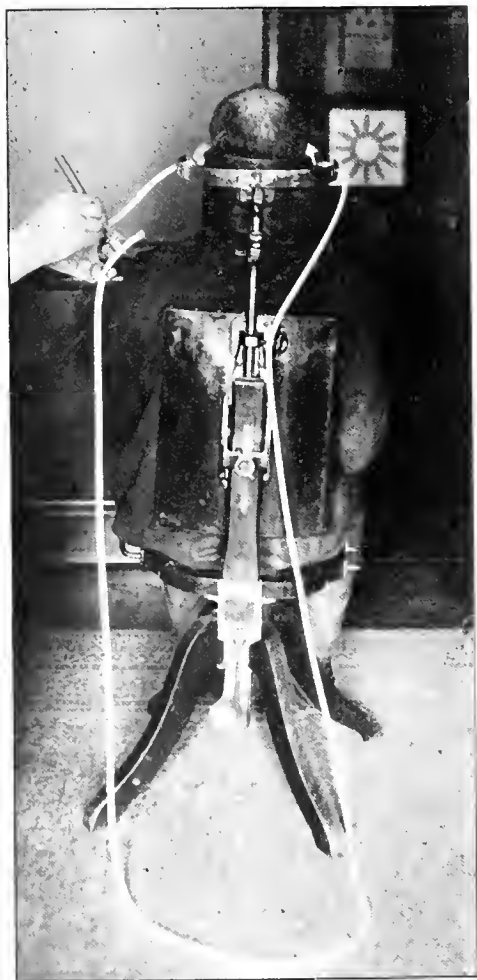
The test demonstrates not only the presence of hearing in an ear, but also the degree of hearing, and it is a test of hearing by air conduction alone. The usual methods are first employed with ticking watch, voice, and tuning fork, and records made of the results by air and by bone conduction. After this has been done I use my tube test.

It is easily demonstrated that tuning forks vibrating with the same pitch and loudness one inch from each ear are heard in each ear, but that if the fork at left ear is removed to a point three inches from the ear, this sound is lost and only the fork remaining at one inch from the right ear is heard. If now the one at the right ear is removed six inches from the ear, it will no longer be heard; but the left one, formerly not heard, will again become audible. I found that similar results are obtained if the tuning fork was placed against a rubber tubing, the latter transmitting the fork vibrations to the ear. In my first experiments I used the stethoscope, touching the bowl of the instrument with the vibrating fork and cutting off the sounds from one ear or the other by pinching one or the other arm of the tubing with a haemostat. I found that this was not satisfactory because the haemostat did not cut out all sound from the pinched side of the tubing. Also, the diaphragm of the stethoscope is unnecessary. For several months I have used simply about a seven foot length of rubber tubing, hole 3/16, wall of tubing 3/32 inch, to either end of which is attached an aluminum funnel. The use of lugs allows of bone conduction entering the test, as in this technic the vibrations transmitted along the tubing can be felt even by the hand and are easily transmitted through lugs to the bony parts in the region of the ear. The funnels are held to the ears, and about one inch away from them by a simple attachment on the headrest of the examining chair which allows of adjusting them to cover the ears without touching the patient.

This is important as we are concerned only with air conduction, and to prevent bone conduction from entering into the test we must be sure that no part of the apparatus comes into contact with the patient's person at any point.

I find that tuning fork 256 C 1 is heard by the normal ear when placed against the 3/16 3/32 inch tubing at any point up to 7½ feet from the ear. With a larger size tubing the same tuning fork is heard as far away as thirty feet from a normal ear. As a routine in this test I use the fork and tube of the first named sizes.

The application and results in an individual with two normal ears are as follows: The seven foot tube is connected with one funnel, the latter being placed about one inch from the right ear. The tuning fork vibrating is applied to the tubing about six inches from the ear and moved along the tube away from the ear until it is no longer heard. This will usually be about seven to seven and one half feet. The tube is now disconnected from the right funnel and attached to the left, and the same procedure followed. If normal, the left ear will also hear the sound of the fork transmitted along the tube up to seven feet or more from the ear. Now the tube is attached to both funnels. The vibrating fork is applied to the tube one foot from the right ear and moved along the tube away from the right ear and toward the left ear. It will be heard only in the right ear until it reaches a point about three to three and one half feet from the right ear, at which point it will be heard also in the left ear and will continue to be heard in both ears for a distance of about four inches in the middle of our seven foot tube. It is this space of about four to six inches in the middle of the tube that I call "the neutral space." The sound in this neutral space almost imperceptibly disappears from one ear to appear in the other, and in this space there is some doubt in the patient's mind in which ear he hears the fork. As we pass through the neutral space, the sound becomes perceptible in the left ear and is not heard in the right. It is to be noted well that whereas the right ear heard the tuning fork up to seven feet in the first part of the test, it now loses the sound of it along the same tubing at about three and one half feet because in this second instance the other end of the tub-



ing goes to the left ear, and as the tuning fork passes from the right half of the tubing through the neutral space to the left half of the tubing, the sound is heard in the left ear alone. The detection of feigning now becomes practicable if it takes the form of misstatements concerning the hearing in one ear.

Illustrative case No. 1. This patient heard whispering voice in good ear at eighteen feet, and in the bad ear at three feet. The tube was connected with the funnel for the good ear; and the tuning fork was heard at $7\frac{1}{2}$ feet. The tube was then connected with the funnels for both ears. Moving the tuning fork along the tube away from the good ear it was heard only in the latter until we reached a point 30 inches from the bad ear and 54 inches from the good ear, where the patient could not tell in which ear he heard the sound. At 26 inches from the bad ear he heard it only in the bad ear, and on moving the fork back again toward the good ear he again was not able to say which ear he heard the sound when the fork was 30

inches from the bad ear and 54 inches from good ear, but two inches farther along the tube—32 inches and 52 inches—he heard it only in the good ear.

In this case the patient really had a marked difference in the hearing of his two ears, as the tests showed plainly. In normal ears the neutral space would be in the middle of the tube, and either side of this space the patient would uniformly tell us that he heard in the ear nearer the tuning fork.

Illustrative test No. 2. Patient said his hearing in left ear was perfect, but that his right ear was totally deaf. With the long "one ear" tube connected for his left ear it was found on several tests that he heard the fork up to seven and one half feet from the ear. With the same tubing connected with the funnel for the right ear he persistently held that he did not hear it even at four inches from the ear. The tube was then connected with both funnels and the tuning fork started at the left-good-ear. He admitted hearing the sound in the left ear until we reached a point 40 inches from the left ear, when he said that he could not hear it. From this point onward up to 4 inches from his right-bad-ear he claimed not to hear the sound. We then placed the tuning fork over the coupling in the tube—this point being 14 inches from his right ear and 70 inches from his left. He said he did not hear it. The coupling was taken apart and the fork again touched to the tube at the same place where he had just said he heard nothing, viz., 70 inches from the left ear on the end that went to the left ear, and he said he heard it in his left ear. He was caught, for if his right ear had been deaf, he would have heard the sound in his left ear at this point and at every other point up to 84 inches from his left ear while the tubing was still connected with both funnels. He reported not hearing the sound to the right of the neutral space because he was determined to give a negative answer whenever he heard the sound in his right ear.

If the eight foot tubing be cut about 14 inches from one end and joined by a simple wooden coupling—a meat skewer cut* to two inches in length and tapered at each end—it will make simpler the determination as to which ear the sound is heard in. For example, if the subject admits hearing the sound about a foot

* Couplings made of hard rubber tubing are more suitable than meat skewers.

from his bad ear, we can uncouple the tube at the coupling and by touching the fork to one end or the other, find out which ear is hearing it at that point, and by repeating this test see if his answers are uniform. All the tests are done behind the patient who does not know whether two tubes or one are being used, nor does he know which ear is nearer the tuning fork. And all the tests depend on the fact that the patient hears only in the ear in which the sound is louder. We may cut the tube at one or several places connecting it with the wooden coupling as they are about equal to the tubing that I use in the conduction of the vibration.

The following modification of the above method has been used recently to determine the degree of hearing in the bad ear. Take two tubes each the length of the hearing in the good ear. Attach to the funnels of either ear. Touch the end of the tube to the good ear with a tuning fork, and at the same time touch the tubing to the bad ear with a similar tuning fork near the head. Now run down the tubing of the bad ear, being careful that the two tuning forks touch the two tubes at precisely the same time. When the sound in the bad ear—as we get away from it—becomes less than that in the good ear, the patient will not hear it at all and will hear the sound in the good ear, and he will, if malingering, then for the first time admit hearing at all. And this point will be the measure of the distance he hears with the bad ear, as we have just passed through the neutral zone at which point he was hearing the same in both ears.

The apparatus. Stiff rubber tubing, 3-16 inch inside and 6-16 inch outside diameter. Tuning forks. Funnels for each ear. Adjustable headrest with a piece of strap iron extending around to the front on either side, and having several holes through which the rubber tubing may pass to the funnels, and allow them to be opposite the ears and about one inch from the head. I always use a tube the length of which is about 6 inches shorter than the distance that he can hear the tuning fork in good ear.

If bone conduction was to be tested all we have to do is to place the funnel in contact with the cranial bones over the ear.

Book Reviews.

Clinical Diagnosis. By JAMES CAMPBELL TODD, Ph.B., M.D. Fourth Edition. Philadelphia and London: W. B. Saunders Company. 1918.

The fourth edition of "Clinical Diagnosis" has been enlarged and the illustrations have been revised and increased. As in previous editions, emphasis has been laid chiefly upon methods and microscopic morphology. The main sources of error in microscopic diagnosis, such as imperfect preparation of material, faulty manipulation of the microscope, and failure to recognize extraneous structures, artefacts, and other misleading appearances, have been given especial attention. Additions have been made in the material dealing with the use of colorimeters and the pocket spectroscope and methods of matching blood for transfusion. New sections have been added, dealing with the new Bass and Johns concentration method for malarial parasites; the fractional method of gastric analysis, vital staining of blood-corpuscles; resistance of red corpuscles; the mastic reaction in the spinal fluid; the Webber and Aldis method for urobilin as an aid in diagnosis of pernicious anemia; and estimation of amylase in urine and feces in diagnosis of pancreatic disease. The chapter upon sero-diagnostic methods has been revised. The illustrations, including photomicrographs and colored plates, have been carefully supervised by the author and convey a vast amount of important information.

A Manual of Personal Hygiene. Edited by WALTER PYLE, A.M., M.D. Seventh Edition. Philadelphia and London: W. B. Saunders Co. 1917.

The growing demand for "A Manual of Personal Hygiene" has been met by the publication of this seventh edition, revised and enlarged. This book is an exposition of proper living upon a physiologic basis. To develop and maintain physical and mental vigor, knowledge of the normal functions of the body and methods of keeping them in healthy action is necessary. Popular instruction in the prevention of diseases, the rules of domestic and personal hygiene, should be more widely disseminated among communities. Among the subjects considered in this volume are the hy-

giene of the digestive apparatus, of the skin and its appendages, of the vocal and respiratory apparatus, and of the ear, eye, brain and nervous system. The importance of physical exercise and correct body-posture, the problems of domestic hygiene, food adulteration and deterioration, and infant hygiene are discussed. In the appendix are considered such topics as the pulse, temperature, massage, accidents and emergencies, and poisoning. As far as possible, technical phraseology has been avoided, and many explanatory diagrams and illustrations have been introduced.

Radiography and Radio-Therapeutics. Part II. Radio-Therapeutics. Second Edition. By ROBERT KNOX. New York: The MacMillan Company. 1918.

This volume deals with the treatment of disease by radiation and is divided into three parts: treatment by x-rays, treatment by radium, and the combined use of radium and x-rays. In an introduction, the action of radiations upon tissues and the dangers attendant on the use of x-rays and radium are explained. The first part of the book, dealing with x-ray therapeutics, considers special points in instrumentation, such as methods of protection, the arrangement of apparatus, and the use of filters. The treatment of skin diseases, enlarged lymphatic glands, rodent ulcer, epitheliomata, exophthalmic goiter, uterine fibromata, and diseases of the blood, lungs, and mediastinum is considered. The section dealing with radium therapy describes the physics of radium and the practical application of radium to disease. The book contains fifteen full-page plates and one hundred illustrations in the text. The author believes that treatment by x-rays and radium should not displace the operative in all cases; but, even when this is necessary, radiation is of great value before and after operation. Although the progress in this technic has been marked, it is probable that the treatment of malignant disease by radiation is not nearly so efficient at the present time as we may hope for in the future.

Military Medical Administration. By JOSEPH H. FORD, B.S., A.M., M.D. Philadelphia: P. Blakiston's Son and Company. 1918.

This book, "Military Medical Administration," written by a man who has had personal experience with the war in Europe, is of particular value to the medical officer. It considers some of the administrative methods adopted by subordinate medical officers in their efforts to observe official technicalities. The regulations and orders collected in this volume illustrate the mechanism of administration, the methods of official procedure, and the ends they seek to obtain.

The duties of the medical officer and regimental surgeon, their administrative and professional duties, supervision of supplies and sanitary conditions, and means of enforcing military discipline are considered. The organization and activities of the ambulance company, the field and camp hospital, and sanitary squads and committees are explained. The duties of the division surgeon are indicated. Regulations applying to hospital trains and ships and to base hospitals are given. The duties of the department surgeon and of the officers in Public Health Service and at Medical Supply Depots are explained. The requirements to be observed in the examination of recruits and the methods of dealing with cases of malingering are described.

Clinical Bacteriology and Hematology. By W. D'ESTE EMERY, M.D., B.Sc. Fifth Edition. Philadelphia: P. Blakiston's Son and Company.

This book has been prepared primarily for practitioners, who have had no training in bacteriology and hematology, but who find a need for the application of these two sciences in every-day practice. The present volume, the fifth edition, contains added sections, which carry it beyond its original scope and make it useful as a general laboratory handbook. The method of McIntosh and Fildes for the Wassermann reaction, which the author has found to be a simple and reliable process, has been inserted. Part I deals with bacteriology. The apparatus and processes employed, the preparation and inoculation of culture media, the incubation and method of examining cultures are discussed, and the diagnosis of certain diseases and the collection and examination of morbid materials are considered. Part II is devoted to hematology. Methods of estimating the amount of hemoglobin, red corpuscles, and the number of leucocytes, and a brief outline of the chief practical application of the blood-count are given. Part III, dealing with cyto-diagnosis, considers cyto-diagnosis, cells met with in exudates, pleuritic effusions, peritoneal exudates, and the meninges.

The Diagnostics and Treatment of Tropical Diseases. By E. R. STITT, A.B., Ph.G., M.D. Second Edition. Philadelphia: P. Blakiston's Son and Company. 1917.

The second edition of "The Diagnostics and Treatment of Tropical Diseases" is arranged in the same concise and accessible manner as the first edition. Part I deals with tropical diseases, which are considered under the following heads: those due to protozoa, such as malaria and blackwater fever; those due to bac-

teria, such as the plague, cholera, and leprosy; and those due to filterable viruses, including yellow fever, dengue, and seven-day fever. Diseases due to food deficiency, among which are scurvy, beriberi, pellagra, and sprue, are considered, as well as helminth infections, infectious granulomata of the tropics, and tropical skin diseases. A section is devoted to tropical diseases of disputed nature or minor importance. Under each disease, there is a paragraph dealing with the laboratory diagnosis of the disease considered.

Part II deals with the diagnostics of tropical diseases, and presents the clinical side of tropical diseases from a standpoint of the signs and symptoms of these diseases which are connected with anatomical or clinical groupings, rather than from the side of individual disease. Two new chapters have been added in this edition, one dealing with the special problems attached to diagnosis in the tropics, and the other with the diagnostic value of clinical manifestations from the side of the cutaneous system and organs of the special senses.

Materia Medica for Nurses. By GEORGE P. PAUL, M.D., C.P.H. Third Edition. Philadelphia and London: W. B. Saunders Company. 1917.

The appearance of the third edition of "Materia Medica for Nurses" gives evidence of its value to the nursing profession. The book is arranged in six parts. Part I consists of general considerations, such as definitions, drug constituents and preparations. Part II deals with general materia medica, therapeutics, and toxicology. Drugs of recognized value are arranged so that their full value may be easily seen. A section is devoted to pre-toxic signs. Part III includes a discussion of drugs of minor importance. Part IV describes some newer preparations of definite chemical union. Practical therapeutic procedures are treated in Part V; the value of such agents as hydrotherapy, hypodermic medication, antitoxins, and electrotherapeutics is discussed.

The Treatment of Emergencies. By HUBLEY R. OWEN, M.D. Philadelphia and London: W. B. Saunders Company. 1917.

A comprehensive study of the underlying principles of first aid is offered in this volume, "The Treatment of Emergencies." It has been written primarily for first aid instructors, for police, fire, and ambulance surgeons, for physicians and nurses, and for the laymen who wish to make a study of the subject. It suggests methods to be employed in dealing with fractures, contusions and wounds, hemorrhage, sprains and dislocations, burns and scalds, asphyxiation, drowning, convulsions, uncon-

sciousness, effects produced by lightning, antiseptics, foreign bodies, bandaging, transportation and poisons and their treatment. Many valuable household remedies are also offered. This book offers more than a superficial survey of first-aid treatment; it explains the fundamental principles underlying the treatment of emergencies.

New and Non-official Remedies. Chicago: American Medical Association. 1917.

"New and Non-official Remedies" contains descriptions of the proprietary and unofficial medicaments which the Council on Pharmacy and Chemistry of the American Medical Association deems worthy of recognition by the medical profession. The descriptions of the accepted articles are based partly on investigation made under the direction of the Council and partly on information supplied by the manufacturers. Every physician who desires to further the cause of scientific prescribing, who is anxious to see this country purged of the blight of the nostrum, and who desires to aid in diminishing the domination of commercialism in therapeutics in this country should have a copy of this book for ready reference. "New and Non-official Remedies" will be sent postpaid for \$1.00 by the American Medical Association, 535 No. Dearborn Street, Chicago.

Fractures of the Radius. By LEWIS PILCHER, A.M., M.D., LL.D. Philadelphia and London: J. B. Lippincott Company. 1917.

This book, dealing with fractures of the lower extremity or base of the radius, embodies the mature conclusions of a surgeon who has been particularly interested in this subject during thirty-six years of practice. The author contributes descriptions of experimental tests which have come under his observation. The book describes the perpendicular wedge-like impact of the carpus against the articular cup of the base of the radius, the splitting of the lower fragment by descent into it of the lower end of the upper fragment, the explosive splitting of the lower fragment of the radius, the backward, outward, or anterior displacement of the lower fragment, epiphyseal separations, arrest of growth of radius, dorsal untorn periosteum, incomplete fractures, fractures of the ulnar styloid process, and others. Suggestions are given concerning methods of diagnosis, the use of x-ray, methods of treatment, special forms of splints, and treatment of fractures already healed in deformity.

Tumors of the Nervus Acousticus and the Syndrome of the Cerebellopontile Angle. By HARVEY CUSHING M.D. Philadelphia and London: W. B. Saunders Company. 1917.

This volume represents a class of books in medicine of which we have produced here in America all too few, the monograph upon a subject in which the writer has had exceptional experience, supplemented by careful study of the cases and of the literature relating to it. The Johns Hopkins Medical School, and, later, Harvard and a few of our other leading medical schools have done nothing more important for medicine than the making it possible for certain men to have the opportunity and the experience to produce such books.

It will surprise most readers to find that these tumors form 6% of all the cerebral tumors among Dr. Cushing's cases. After a brief historical summary of the subject, the author gives in detail the careful histories and examinations, both clinical and pathological, of his thirty verified cases, and of three additional unverified ones. Then follows an excellent chapter upon the symptomatology of these cases. The author apparently lays considerable stress upon the enlargement of the porus acousticus internus, but he states that the careful study of stereoscopic x-ray plates of both sides is essential, as he himself has "painfully learned," and even then in a certain proportion of cases even experienced men were often unable to demonstrate this sign of an acousticus tumor, and it is also to be noted that an enlargement of the porus may be found with growths in the recess which do not primarily arise from the acousticus. Dr. Cushing lays particular emphasis upon the chronology of the symptoms, especially upon the history of early tinnitus and following deafness. He also regards the Bárány labyrinthine tests as chiefly confirmatory, though in most cases the response to the caloric tests is abolished. The full and careful description of the surgical procedures preferred by the author cannot help but be useful to surgeons who may venture to attack these growths, which are admittedly to be classed among the most difficult to remove by operation of any intracranial growths, yet which are perhaps those giving the most brilliant results after a successful operation.

Diseases of the Nervous System. By SMITH ELY JELLIFFE, M.D., Ph.D., AND WILLIAM A. WHITE, M.D. New York and Philadelphia: Lea and Febiger. 1915.

The aim of the authors of this new text-book of diseases of the nervous system is a somewhat novel and ambitious one of so presenting and classifying both the organic nervous diseases, the functional neuroses and mental diseases, that their relations may be clear and the unity existing in many of these cases brought out more clearly. It is always easy to pick out flaws in any classification of diseases and point out minor errors. It may be

that the writers of this book have attempted the impossible, but one can only applaud the attempt. The division of the subject into vegetative neurology, the sensorimotor, and the psychic has much to be said for it, especially in making more clear to the student the usually much dreaded subject of nervous diseases. The chapter on methods of examination is especially admirable for its completeness, and the brief yet clear description of the various tests. The physician will find the scheme for examination of mental cases especially useful.

The chapter on the endocrinopathies covers a wide field, and while, of course, in a book of this size many topics of interest in these types of disease are touched upon only briefly, this is most often due to our lack of exact knowledge of these troubles, rather than to condensation. Nevertheless, a very satisfactory statement of our present knowledge of this subject is given, and the facts scattered in many books and articles are made readily accessible.

In the chapter on the sensorimotor systems, while occasionally matters are considered rather too briefly, yet in general the treatment of the subject is adequate, and it is a pleasure to see the numerous diagrams and tables, many of them taken from Dejerine's too little known book. The handling of the subject of neural syphilis, both in the discussion of the forms of the disease, and the very sane handling of the much discussed subject of treatment, is most commendable. The balance between conservatism and over-enthusiasm for newer methods being held, on the whole, most justly.

In discussing the treatment of the neuroses, the well-known tendency of the authors towards accepting the teaching of Freud and his followers is shown throughout: but yet if one is not enthusiastic over the use of psychoanalysis as a method of treatment, one must admit that the description of the psychic origin of the neuroses is very striking and illuminating, even if one be unwilling to follow the writers quite as far as they go in accepting some of the teachings of Freud as to "displacements," "substitutions" and "symbolisms." The treatment of the subject of the compulsion neuroses is especially satisfactory, and that of hysteria, the bugbear of neurological writers, rather less so, in the opinion of the reviewer.

The psychoses, as was to be expected, are more than adequately handled, and this chapter forms one of the most admirable parts of the book which, as a whole, must be placed among the best we have, considering the moderate size of the volume.

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ANTIVACCINATION.

It is stated that when Noah was building his ark in preparation for the predicted flood, a bystander insisted that it would not be much of a shower, but even he probably changed his mind later while climbing a tree or clinging to a projecting rock in the waste of waters. Not so the Antivaccinationists, who remain oblivious to the fact that since 1898 smallpox has, by compulsory vaccination, been eliminated from Cuba, Porto Rico and the Philippines; that in no one of the numerous American camps, at home or abroad, with their 1,500,000 occupants, coming from every section and from all classes, has it successfully attacked the, by compulsion, vaccinated soldier; oblivious also to the fact that in Massachusetts, even with its present imperfect law, smallpox is much less frequently seen than in communities not so carefully looked after; and again oblivious to the fact that smallpox was originally a children's

disease and is so no longer simply because of the protection afforded to childhood by vaccination. These Antivaccinationists choose the present time, when we are all busy with activities connected with the world war, to come forward and once again try to tear down the protective barbed wire of the public school compulsory vaccination law, abolish all compulsory vaccination in the State, take care that no one shall be elected to the Legislature who does not hold with their views, and insult the medical profession by stating that a goodly number of physicians are behind them in this propaganda. I ask all physicians to read carefully the following extracts from a letter sent out by the so-called Medical Liberty League, incorporated, and to see to it that candidates for legislative positions understand that to vaccination we are indebted for our present immunity from the scourge of smallpox.

With the present depletion in our ranks, it behooves every home remaining member of the Massachusetts Medical Society to make of himself a volunteer member of the committee auxiliary to the Committee on State and National Legislation, and to be active in furthering good and defeating vicious medical legislation during the coming year.

I feel that I am entitled to ask for earnest coöperation in such work, for surely each man owes this to the Society of which he is a member.

The circular above referred to reads in part as follows:

MEDICAL LIBERTY LEAGUE INC., OBJECT TO
ABOLISH COMPULSORY VACCINATION IN MASSACHUSETTS.

Executive Committee.

Masen Paddleford, M.D., President,
Mary Emery, D.O., Vice-President,
James F. Ford, Treasurer,
Jessica Henderson, Secretary,
Richard S. True, M.D.,
R. Kendrick Smith, D.O.,
C. Augustus Norwood.

Dear Mrs. ———

This letter is to interest you in a League just incorporated under the laws of this State to carry on a vigorous campaign to abolish all compulsory vaccination laws in Massachusetts.

The number of sympathizers in this cause is very large. A goodly number of physicians throughout the State are unalterably opposed to these compulsory laws. These physicians

are represented on our Executive Board. This cause needs your help. Will you send what financial aid you can? Will you also send a list of names of those you know to be with us?

It would be helpful in our work to have the names and addresses of persons you know who have suffered injury from vaccination. We are anxious to do our work both quickly and thoroughly. To this end we shall make an effort to elect men to our Legislature who believe in medical freedom. In order to do this we must have friends and coöperation.

Please read the enclosed leaflets, from which you will see that we can gain our freedom only by concerted, courageous, persistent effort.

Faithfully yours,
JESSICA HENDERSON, *Secretary.*"

The enclosures consist of statements made at a legislative hearing in 1916, when Dr. Padleford called vaccine virus a quack nostrum, vaccination quackery, and in this State quackery State-enforced, and another gentleman, now deceased, stated that statistics showed that people between the ages of forty and sixty were dying faster than ever before, and that he believed this was related to vaccination.

The amount of time and effort required to combat these misguided individuals each year is prodigious, but our duty to the community forces us to labor on, and not to forget that in 1916 they nearly succeeded in overthrowing all vaccination laws, leaving the community exposed to what we well know would surely come upon it under such circumstances.

SAMUEL B. WOODWARD.

HARVARD IN THE GREAT WAR.*

In the Official Register of Harvard University are described the activities of the Harvard Medical School. The following extracts from the President's report show the spirit in which the school has answered the call for its services:

"The Medical School has naturally been engaged in preparing men for military duties, quite apart from the service of its instructing staff among the troops. At the request of the Surgeon-General, courses in medicine for the Army and Navy have been given at the school, and a course in orthopedic surgery has recently been established to provide special instruction to selected members of the Medical

Corps. Upon completion of the course, these last will be assigned to active duty in reconstruction hospitals in France and the United States. The large demand for physicians and surgeons in the war has drawn heavily upon the members of the profession in France and England, and is now drawing upon those in this country. Deeming it important, therefore, to prepare students for active practice as rapidly as possible, the men who had finished the third year were offered the option of continuing their regular instruction at the school and the hospitals throughout the summer, or at the ordinary time. By this process ninety men will have completed the work for their degrees, and become available for the Medical Corps next February instead of the following June."

"Previous annual reports described the Harvard Surgical Unit, which occupies Base Hospital 22 with the British Expeditionary Force in France. This has been continued under the lead of Dr. Hugh Cabot, who, with his colleagues and nurses, agreed to serve there so long as the war shall last. Their surgical work, general and oral, has been invaluable and has given the highest satisfaction to the English Army medical authorities. Meanwhile, in anticipation of a possible war on the part of this country, three other hospital units were organized: one by the Medical School in connection with the Peter Bent Brigham Hospital, under the lead of Dr. Harvey Cushing; another by the Massachusetts General Hospital; and the third by the Boston City Hospital; both of these last being also composed in large part of members of the teaching force of the school. The first two of the three latter units have already gone, one to serve with the British and the second with the American forces in the war.† A number of other members of the faculty of medicine are engaged in military work at home or abroad; and it speaks well for the strength of the teaching force at the school that the courses have, nevertheless, been continued unimpaired."

"The Dental School has contributed its quota to these hospitals; and, at the request of the Government, its clinic of one hundred and twenty-five chairs has been used for dental treatment of drafted men, and for those temporarily exempted from draft on account of

* Official Register of Harvard University, Vol. xv, No. 6, 1918.

† Since this was written, the City Hospital unit has also gone for service abroad.

the condition of their teeth. The Dental School also maintains a couple of chairs at the Naval Radio School in Cambridge, and one at Commonwealth Pier for members of the Naval Reserve."

"In view of the large demand for surgeons and physicians in the war, the students in the Medical and Dental Schools were urged to complete their studies before offering their services to the Government, and in fact they could not be enrolled in the Medical Corps of the Army and Navy until they had obtained their medical degrees. Recognizing the importance of a large supply of such men, the War Department decided that drafted men, who had completed a year in a medical school, should be ordered back to complete their work—a provision which it is hoped may soon be extended to dental schools also; for the value of dentistry, both in fitting for service men with defective teeth, and in treating ghastly facial wounds, has begun to be recognized. In the Medical School there was some falling off in the entering class; but it so happened that the fourth-year class was much smaller in 1916-17 than it is in 1917-18, and hence the total enrollment in the school is actually larger than last year."

The regular work of the various departments has been continued as usual. The report includes a record of various contributions to literature and research offered by the different departments. Scholarships, accessions to the Library, and positions offered by the Appointment Bureau are also mentioned. The total number of students in the school was 363.

The Graduate School of Medicine has given instruction to 620 students during 1916-17. Instruction in military medicine was offered in July, 1916, and in March and April, 1917.

The School of Tropical Medicine made arrangements for special work in kala azar, for the survey of some of the United Fruit Company hospitals and of the Amazon basin. The school has offered courses of instruction in tropical medicine, and has developed a clinic in the subdepartment of tropical medicine at the Massachusetts General Hospital. It has also conducted research work in tropical medicine and allied subjects in general medicine, and has established work at stations in the tropics.

The Dental School had an enrollment of 239

during the past year. A list of courses of instruction, and a record of laboratory work and service to patients is included in this report. During the summer, a special course in dental military surgery was given to graduate men and advanced students.

NECESSITY KNOWS NO LAW.

THE rapidly increasing fighting forces of the United States Army, so familiar to every doctor who reads the lay papers, must impress him with the fact that the Medical Reserve Corps must keep a pace in the way of expansion.

With every thousand men in the fighting forces, there must be ten medical officers, so it is a matter of simple calculation to figure the requirements of the Surgeon-General's Office in the number of medical officers that must be at the command of the Surgeon-General when required.

With three million men in the United States Army by the end of August, this means 30,000 doctors, and there are now less than 20,000 on the active list of the Medical Reserve Corps. In addition to the number required for immediate assignment with troops, a large reserve corps should be at the command of the Surgeon-General so that when the necessary number is required they will be at his disposal.

The doctor is the most favored of all professional men in the matter of his assignment. The lawyer, as an example, when drafted or when he voluntarily offers his service and assigned to duty, draws \$30.00 a month pay. The lowest pay accorded a medical officer is \$2,000.00 a year with additional pay for commutation of quarters for dependants.

It is the belief of the Surgeon-General that a sufficient number of physicians will voluntarily come forward and offer their services as medical officers, and we therefore must do our duty not only to our country, but to those who are so admirably conducting this war in which we are now engaged.

A large and well trained medical corps is absolutely essential as 80% of the casualties are returned to the line through its ministrations, and it must now be a matter of history that a sufficient number of medical officers have not volunteered their services to care properly for the

mobile forces, attend the wounded and sick in hospitals and to supply the Surgeon-General, whatever the demands might be.

Five thousand physicians a month for an indefinite period is the requirement, and those doctors who are of the opinion that other physicians in their immediate neighborhood are better qualified or have less responsibility than themselves, should, in view of the crisis now facing us, subjugate their individual opinion and apply to their nearest examining board for a commission in the Medical Reserve Corps.

A medical reserve corps should be what its name implies, a corps of reserve physicians upon which the Surgeon-General may call, and this country today should have a reserve corps of not less than 50,000 doctors and every physician should feel it his duty to be part of this organization.

WHY SHOULD THE SURGEON-GENERAL APPEAL FOR MEDICAL OFFICERS?

Of the 146,000 doctors in the United States, it is a safe calculation that at least 70,000 of the number are within the age limit, from 21 to 55 years, and are physically and morally qualified to serve as medical reserve corps officers.

Why, in view of this fact, the Surgeon-General's Office should be hard put to secure a sufficient number of medical officers to supply immediate demands and to furnish a reserve force of between forty and fifty thousand doctors is not quite comprehensible.

Every qualified physician, knowing how essential his services are to his country, at this particular time, should consider it not only his duty, but a privilege to take part in this glorious struggle for humanity and democracy.

This is the time when individual opinion must be sacrificed for the benefit of the whole and the time is near when every doctor must be in one or two classes: either a member of the medical reserve corps, United States Army, or in the volunteer medical service.

If you are between the age of 21 and 55 years, and there is a doubt in your own mind as to whether you are qualified or not, let the Surgeon-General determine this matter by applying at once to your nearest Medical Examining Board for a commission in the Medical Reserve Corps.

MEDICAL NOTES.

LONDON MORTALITY RATES.—The mortality rate in London during June, 1918, totaled 11.8 per thousand inhabitants living. In the various districts and boroughs, the highest rate was 15.8, in Southwark, and the lowest, 8.8 in Wandsworth.

THE IRISH MEDICAL ASSOCIATION.—The annual meeting of the Irish Medical Association was held recently in the Royal College of Surgeons, Dublin, under the presidency of Dr. G. E. J. Greene. After a brief address from the president, the meeting discussed the position and organization of the medical profession in Ireland. There are at present three medical bodies in Ireland, the Irish Medical Association, the British Medical Association, and the Irish Medical Committee, each claiming in some degree to represent the profession. There is, of course, some overlapping of functions, and waste of energy is unavoidable, while this condition continues. The Irish Medical Association has now directed its council to endeavor to persuade every member of the profession to join the association, which would thereby become the representative association for the whole country. The meeting had also under discussion the possibility of increasing the number of medical men in Parliament, and a discussion took place concerning the remuneration of constabulary and coastguard medical officers.

PEKING UNION MEDICAL COLLEGE.—The annual announcement of Peking Union Medical College for 1918 gives an account of the history and organization of this institution. The medical school was founded in 1906, following the disorganization of mission work that resulted from the Boxer outbreak. In the spring of 1914, the China Medical Board of the Rockefeller Foundation acquired the property of the Union Medical College in Peking, and in July, 1915, assumed the full support of the college.

The college has been reorganized and the work for 1919 will be divided between two schools: the medical school, which will give a four years' course in medicine and an additional year of special work in the laboratories or hospital; and the pre-medical school, which will offer a three years' course preparatory to admission to the medical school. The language of instruction has been changed from Chinese to English.

The announcement contains information regarding requirements for admission to the medical and pre-medical schools. The buildings and equipment, the religious and social activities of the students, and the courses offered are described.

HUNTINGTON'S PREVENTION MEASURES.—The Board of Health of Huntington, New York, has taken measures to regulate the civil environment. Prevention measures, such as curfew regulations, have been adopted.

Civil populations have been found to be a very serious menace to the health of the soldiers. These include not only the immediate zones surrounding the camps, which may be cared for by the local authorities in coöperation with the United States Public Health Service, but the large cities as well, though distant from actual military life. In a recent report it was noted that very much of the infection of soldiers should be credited to the places through which they pass on the way to the camp.

It is not merely the actual army that is involved in this question. Dr. Guilford H. Sumner, secretary of the State Board of Health of Iowa, is authority for the statement that prostitutes in this country have infected about half a million men in what is virtually our reserve army, namely, among the registered men not called in the first draft. Women on the street, therefore, constitute one of the most effective aids to the Germans, and stringent regulations like those of Huntington, well enforced, become the patriotic duty of every board of health in the land.

OZONE FOR SWIMMING TANKS.—Wallace A. Manheimer, secretary of the American Association for Promoting Hygiene and Public Baths, suggests that ozone is better for the purification of swimming pools than any other available material. Ultra-violet light is ineffective when confronted with the actual conditions of the problem, while copper sulphate in low dilutions is unreliable, and at high strength is costly and makes the water disagreeable to bathers. Chlorine compounds are effective from the viewpoint of disinfection, but require a better knowledge of chemistry to strike the balance between odor and taste on the one hand and bacterial purity on the other, than can be expected of the ordinary bath attendant.

Ozone is most highly recommended for purifying water, Rosenau having classed it as a germicidal agent next in effectiveness to boiling, and is easy of application. Practical tests made in New York showed that with one part ozone per million parts of water, there was sterile water, while with half the ratio of ozone, the sterilization was a few tenths of one per cent. lower. The cost of installation in normal times will be about three cents per gallon of capacity of the pool, while for operation, from fifteen to thirty cents a day for electric current and calcium chloride. The mechanism is automatic and the cost of installation, it is asserted by Dr. Manheimer, will readily be met by economies in water if, as in New York City, it is necessary to pay for the water supplied to the pool.

FOLK-MEDICINE IN THE ARAN ISLANDS.—In *The Lancet* there has been published recently an interesting article concerning folk-medicine in the Aran Islands. A number of beliefs which still survive there are described. If, for instance, a child is bitten by a dog, it is thought that an evil influence enters him, and he is promptly treated with a hair of the dog. The hair of the animal is rubbed stiffly across the boy's mouth, causing intense torture to the bleeding patient who has just been bitten on the mouth. The dog is then thrown into the sea. The "saliva cure" is another means of defeating the purposes of the evil eye. The person accused of casting a spell can also cure it by spitting. Sputum was doubtless once held to convey the soul or, like blood, to contain the soul and, on the homeopathic principle, the magician's soul can cure the evil wrought by the magician's eye. In cases of acute disease, "the first resort is the saliva cure, and should the person accused of casting the spell resent the insinuation and not be friendly disposed in that special direction, the patient's progress and relief from suffering are supposed to be hindered until he (the caster of the spell) enters the sick room and saturates the bed-clothes with this filthy secretion."

A new-born child in Aran must be duly spat upon by the first person entering the lying-in chamber, and the compliment must be extended first to the mother, then to the medical man, nurse, or other attendant. The Aran Islanders regard this spitting as a potent charm.

The Aran Islanders believe that fairies meet them in certain places, as for instance on the

rocks of the lonely seashore, and that they there work spells on them, damaging to health. Aran mothers believe that sick children are changelings, and that fairies take their souls away. The Aran women, like all tribal women, are truer to the primitive type than the men, who travel and come under the influence of modern ideas.

PHYSICIANS WHO SIGNED THE DECLARATION OF INDEPENDENCE.—Among the signers of the Declaration of Independence of the United States of America on July 4, 1776, were the following physicians: Josiah Bartlett, New Hampshire, born in November, 1729; Lyman Hall, Georgia, born in 1731; Benjamin Rush, Pennsylvania, born December 24, 1745; George Taylor, Pennsylvania, born in 1716; Matthew Thornton, New Hampshire, born in 1714; and Oliver Wolcott, Connecticut, born November 26, 1726. They died at the ages of 66, 53, 65, 89, and 72, respectively.

THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.—The American Board for Ophthalmic Examinations at a recent meeting held in New London, Connecticut, decided to hold its next examinations at the New York Eye and Ear Infirmary, New York, Friday, October 25. Dr. William H. Wilder, Chicago, was elected Secretary of the board.

The examinations next October will be the fifth to be conducted by the board. This board is composed of representatives of the American Ophthalmological Society, the Section of Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Oto-laryngology. By arrangement with the American College of Surgeons the board has become the Ophthalmic Credentials Committee of the College, and conducts the examinations of the ophthalmic candidates for Fellowship in the College. The examinations as stated in Bulletin No. 1 of the College are as follows:

In addition to the general requirements for admission to Fellowship (except Article 9), the examinations in ophthalmology consist of: first, case records; second, written examinations; and, third, clinical laboratory and oral examinations, or so much thereof as may be judged necessary:

(a) Candidates in ophthalmology are required to submit twenty-five complete case records in accordance with Article 9. Ten of

these records should be of cases of ocular diseases and defects of varied character, including errors of refraction or muscle balance; external ocular diseases or diseases of the uveal tract or retina, or of the optic nerve, or glaucoma. The reports should show especially the reasons for the diagnosis and for the operative treatment, and the technic of operations.

(b) The written examination will test the candidate's knowledge of the underlying principles or science of ophthalmology, including anatomy, embryology, physiology, physiologic optics, pathology, relations of the eye to other organs and diseases of the body.

(c) The oral examination will include:

The external examination of the eye.

Ophthalmoscopy. (Candidates are requested to bring their own ophthalmoscopes.)

Measurements of errors of refraction.

Testing of the ocular movements and fields of vision.

Relations of ocular conditions to diseases of other parts of the body, and their treatment.

Laboratory examination in histology, pathology, and bacteriology of the eye.

Further information may be had upon request from the American College of Surgeons, 25 East Washington Street, Chicago.

THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.—The American Board for Ophthalmic Examinations was organized in 1916 for the purpose of systematizing and standardizing training of those practising ophthalmology. It consists of nine members. The three functions of the board are:

1. To establish standards of fitness to practice ophthalmology.

2. To investigate and prepare lists of medical schools, hospitals, and private instructors recognized as competent to give the required instruction in ophthalmology.

3. To arrange, control, and supervise examinations to test the preparation of those who desire to practise ophthalmology, and to confer a certificate upon those who meet the standards established.

The board issues no degrees, but certifies any who voluntarily apply and satisfy the board of their fitness. This movement is undertaken for the purpose of raising the standard of ophthalmology. Whenever candidates fail to pass the examination, it will be the desire of the board to induce such men to

make an effort to overcome their deficiencies, and the board will gladly make suggestions as to what courses should be pursued by such candidates to enable them to establish their fitness. In some cases, the applicant's professional record may be so well established that he may be certified without further examinations.

WAR NOTES.

FOLLOW-UP WORK AMONG TUBERCULOUS SOLDIERS.—In a recent issue of the *JOURNAL*, the importance of following up cases of tuberculosis among soldiers was commented upon. In this connection, the July Bulletin of the National Tuberculosis Association describes the work which is being done in the different States.

"In Iowa, advantage is taken of a state law under which the county commissioners may be required to expend \$15.00 a week for the care of a tuberculous patient; and the central division of the Red Cross has urged its home service sections to avail themselves of such public resources, supplementing the expenditure if necessary.

The Minnesota agreement applies not only to discharged soldiers but is broadened to include the collection of information regarding men rejected in the draft. Therein it takes account of a problem which, as regards numbers involved, is, of course, much greater than that which is confined to men subsequently discharged from the Army. The initial contact in all cases is to be made by the Red Cross, except where 'local health departments express a willingness' to do so.—this exception applying to Duluth, Minneapolis and St. Paul. It is also provided that the services of medical experts for diagnosis, instruction and public lectures are to be supplied by the Advisory Commission of the State Sanatorium for Consumptives, which is a party to the agreement. All public health nursing service required will be furnished by the Minnesota Public Health Association. In the event that funds cannot be obtained from other agencies for the treatment of tuberculous patients, the entire expense of such care it is provided is to be borne by the local chapters of the Red Cross.

The southern States of North Carolina, South Carolina, Georgia and Tennessee recently conferred at Atlanta with the southern division of the Red Cross, and reached an agreement which has already been signed in North Carolina and perhaps by this time in the other States. As in Minnesota, this agreement provides for securing information regarding men rejected in the draft. The Red Cross does not agree to take any part in se-

curing treatment for these men, this apparently being regarded as outside the scope of home service sections, but the other two agencies—that is, the Board of Health and the Tuberculosis Association—are permitted to use the reports regarding these men from home service sections as the basis for developing local interest in obtaining treatment from other sources. The financial arrangement is that the Red Cross will pay for the temporary care of the discharged soldier, and that 'in the more permanent treatment it will be the policy of the Red Cross to provide for one-third or more of the necessary expenses, as determined by the exigency of the case, over and above what the family can provide.' Initial contact is to be made by the Red Cross except in localities which have tuberculosis societies."

WORK OF DR. LOUISA ANDERSON IN LONDON HOSPITALS.—Letters from Dr. Louisa Gerritt Anderson of London give interesting glimpses of what has been accomplished by a group of women physicians during the last three years. Although brief and written under great pressure of anxiety and work, they reveal many important phases of life which go to make up the present war history.

Her letters tell of the opening of a hospital of 520 beds in London under the control of the military office, with Dr. Anderson supervising the professional side, and Dr. Flora Murray in charge of administration, fourteen other women doctors and eighty others employed as orderlies, stewards, etc. The latest communications describe the taking of an old workhouse infirmary in Endell Street, a four-story building built around a court yard, and where there are 570 beds and 150 more in an auxiliary hospital close by. A full three years of work was celebrated with a varied program, in which 43 of the original staff, who had served continuously from the beginning, took part.

More than 5000 operations have been performed.

In the most recent communication, Dr. Anderson writes that she and her associates are longing to be of service to the American troops. She speaks, also, of the closer bond of sympathy that is growing between the two nations, and the better understanding among men and women through devotion to a common cause, which all are exhibiting.

HEALTH OF TROOPS.—The health of troops in the training camps and cantonments of the

United States during the week ending July 26 was very good. The death rate for the week was 2.12, the lowest recorded since last October. Deaths numbered 104.

COMMISSIONS IN MEDICAL RESERVE CORPS.—The following commissions in the Medical Reserve Corps have been announced:

Major. J. A. Ceconi, Dorchester.

Captains. Edward Martin Crane, Hardwick, Vt., Fritz W. Gay, Malden; T. W. Murphy, Lawrence; W. J. Sanborn, Boston; F. R. Sims, Melrose.

First Lieutenants. Charles G. Wiles, Brockton; E. P. Hand, Holyoke; J. J. Hilton, Lawrence; H. E. Lynch, Holyoke; C. C. Sturgis, Boston.

THREE BROCKTON DOCTORS COMMISSIONED.—Three Brockton doctors have recently entered service in the Medical Reserve Corps: Lieutenant L. Mara will go to Fort Oglethorpe, Ga., for a brief period of preliminary training. Dr. Thornton A. Landers, for more than a year interne at the Brockton Hospital, and recently engaged to remain at the hospital for special work, has been called for special duty at Fort Slocum. Dr. Joseph H. Lawrence, a member of the surgical staff at the Brockton Hospital, has been appointed captain in the Medical Reserve Corps.

MARBLEHEAD DOCTOR COMMISSIONED.—The first physician from Marblehead to enter the service is Samuel G. Eveleth, who has been appointed first lieutenant in the Medical Reserve Corps. He graduated from Harvard Medical School in 1908 and served at the Relief and City Hospitals in Boston. He has practised in Marblehead since 1909.

MEDICAL MILITARY SERVICE A PRIVILEGE, NOT A SACRIFICE.—In military hospitals the most dreadful consequences of war are certainly to be seen, and there, if anywhere, thoughtful observers might be expected to form the conviction that peace is worth any price and war altogether unjustifiable and altogether detestable. Some of them do, as is only too well known, but others, and fortunately the great majority, see the "horrors of war" in their relations, not in the absolute, and reach a different conclusion.

One who has done so is a doctor from Kentucky, who has written home a letter showing that what have impressed him are not the hor-

rors of war, though he has seen them at their worst, but the heroisms and the self-forgetting devotions of the men he is able to help and serve. Of himself he writes:

'I feel every day that it is one of the greatest privileges of my whole life to be here and feel that I can do even a little to make their heavy burdens a little easier to bear. I would not have missed coming for anything in the world, and shall be happy and grateful all my life that by studying medicine I have not only been able, as the world calls it, to succeed as a doctor in civil life, but, greater still, to be able to do the work that I can do here.

One simply cannot do and see all the things we see here without being bigger and better for it. As you can easily imagine, we see many, many things every day that fill our eyes with tears, but, on the other hand, we see so much and have the chance to do so much good that it far overbalances on the right side, and I have long since decided that, instead of making a sacrifice to come, it has been a great privilege.'

TEACHERS IN MEDICAL SCHOOLS MAY BE DRAFTED.—Nearly 50,000 doctors will be required for war service eventually, according to the Army and Navy authorities, and in order to prevent the disorganizing of the teaching staffs of the medical schools, it is proposed to commission all teachers and assign them to their present duties. Of the 143,000 doctors in the United States it is estimated that between 80,000 and 95,000 are in active practice and that 23,000 are in the Army or Navy.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending August 3, the number of deaths reported was 200, against 249 last year, with a rate of 13.30, against 16.81 last year. There were 48 deaths under one year of age, against 32 last year.

The number of cases of principal reportable diseases were: diphtheria, 32; scarlet fever, 9; measles, 54; whooping cough, 40; typhoid fever, 3; tuberculosis, 51.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 1; typhoid fever, 1; tuberculosis, 13.

Total deaths from these diseases were: diphtheria, 2; measles, 2; typhoid fever, 1; tuberculosis, 15.

Included in the above were the following non-residents: typhoid fever, 1; tuberculosis, 2.

BOSTON PUBLIC HEALTH.—The *Public Health Bulletin* of the city of Boston for June, 1918, includes several interesting articles. Among them are suggestions for the care of newborn babies and the nursing mother. The plan for protecting the health of troops from local epidemic diseases is described.

Statistics given show that 65 visits were made by the medical inspector and 390 by nurses of the Health Department. The Instructive District Nursing Association made 648 visits. One hundred and eighty-nine babies were cared for by the Baby Hygiene Association. There were 863 deaths reported in the month of June, against 999 in the corresponding period last year.

LEPER COLONY AT PENIKESSE.—Penikese Island, situated a few miles off the Massachusetts coast in Buzzard's Bay, is to be used as a national leper colony. United States government officials have decided to keep all the lepers of the country on the island. At the present time there are more than 1000 lepers in the United States.

Penikese will soon rival the leper colony on Molokai, one of the Hawaiian group in the Pacific.

As at Molokai, much scientific research work will be done at Penikese. This fatal disease which makes men and women outcasts from society will be closely studied in order that those suffering from it may be given additional relief.

The long search for a cure will be continued there. It is to be hoped that eventually this scourge will come under complete control of man as other malignant maladies have. Like cancer, leprosy has baffled the medical world for ages and, while numerous cures have been reported from time to time, all have failed to solve the mystery.

Through the concentration of all lepers of the United States on Penikese Island, it is believed that many valuable data will be gathered which will ultimately bring about a cure.

It is thought that the work of removing the lepers of the entire country to the little Massachusetts island will be done gradually, as many more buildings must be erected to accommodate them. At the present time there are but twelve lepers at the institution.

COMMONWEALTH ARMORY HOSPITAL FOR WOUNDED SOLDIERS.—The use of the emergency

hospital at Commonwealth Armory has been offered to the War Department for the wounded soldiers from overseas. A medical staff and corps of trained nurses have been organized, available on call. The hospital has a capacity of 500 beds, and 100 wounded or sick soldiers can be accommodated.

GIFTS OF DR. JOHN A. GORDON.—Among the public bequests made in the will of Dr. John A. Gordon were the following:

To the Quincy City Hospital, \$2000; to the Harvard Medical Alumni Fund, \$200.

BEQUESTS TO CHARITY.—Among the bequests left by the will of Mrs. Ernestine Kettle are included the following gifts:

Ten thousand dollars to the Boston Association for the Relief and Control of Tuberculosis, and the same sum to the Industrial School for Crippled and Deformed Children, the Perkins Institution for the Blind, to the Reynolds Memorial Hospital, Moundsville, West Va., and to the Adams Nervine Asylum. A trust fund of \$30,000, left to two household members, is to revert to the estate on their deaths, and is to be divided between the Perkins Institution and the Boston Association for the Relief and Control of Tuberculosis.

PUBLIC HEALTH BULLETIN OF MASSACHUSETTS.—The *Public Health Bulletin*, issued by the State Department of Health of Massachusetts, for June, 1918, contains an article pointing out certain objectives of the infant weighing and measuring campaign. Almost the entire State has been surveyed by trained public health nurses to ascertain the causes of infant mortality, and, in a large number of communities, active work has been started to remove these causes. In Cambridge, out of 4,052 children under five examined, 470 were found to need special care.

One of the first essentials for the reduction of infant mortality is the protection of the mother before and after the birth of her child. In this field, the public health nurse performs a most valuable service. A second factor in the follow-up work of the present baby-saving campaign is the establishment of more health conferences for both mother and child. This intensive national campaign emphasizes the necessity of stimulating communities to establish more public health centers and to employ a larger number of public health nurses.

The *Bulletin* contains, also, a note on the progress of the Massachusetts venereal disease program and reports of the Division of Food and Drugs and of the Bacteriological Laboratory. A résumé of communicable and occupational diseases is given. New legislation which has been adopted, and rules, regulations and recommendations pertaining to the business of slaughtering and meat inspection are included.

Miscellany.

BABIES IN A WAR INDUSTRIES TOWN.

THE inadequacy of protection afforded babies and the imperative need for more effective means of preventing the deaths of little children in one of the towns where conditions have been greatly changed by the growth of war industries are revealed in a report on Waterbury, Conn., made public Aug. 8 by the Children's Bureau of the United States Department of Labor. Even before the war, insanitary housing conditions, imperfect civic provision for educating mothers in the care of their children, indifference to the need of giving the many foreign born mothers the advice and help they need to make them assimilate American ways and customs, have militated to keep up the infant death rate which averaged for the years 1910-1915 146.5 per thousand, or about one death in every seven live births, which is nearly half again the rate for the United States Registration Area.

But the rate was not uniformly high for all groups in the city. Two thousand one hundred and ninety-seven babies born between June 1, 1913, and May 31, 1913, were included in the study. In each case a personal visit to the home was made, and the mother, or if she were not living, the person who had the child in charge, was interviewed. Rich and poor, native and foreign born were alike included, and every one of them willingly gave the information desired. Two hundred and sixty-three of the babies had died before they were a year old. But of the babies of fathers who earned less than \$450 a year about one in six died during its first year, whereas when the father's yearly income was as much as \$1250, the death rate was greatly reduced, and about one baby in every fifteen died. And a fifth of the births in Waterbury were in families

where the father earned less than \$450 a year. By far the largest number of fathers in this lowest income group were employed in the factories. Waterbury is the largest brass and copper manufacturing city in the United States. The foreign born men were much more poorly paid than the natives. About a third of the foreign born fathers earned less than \$450 a year, whereas of the natives only about a twentieth belonged to this low paid group. Few foreign born fathers were earning as much as \$1050.

But low income is not the only influence working for a high infant mortality rate among the children of foreign born parents. The infant mortality rate among the Lithuanians as a whole, who form an important part of Waterbury's population, is far higher even than that for the lowest income group to which many of them belong. Of the babies born of Lithuanian mothers more than one in five died before it was a year old. The babies of Irish mothers died at a slightly lower rate. As a whole, the babies of foreign born mothers died at a rate more than one third higher than that of the babies of native mothers.

The report points out several reasons for this higher rate among the children of the foreign born. The foreign born mother has to contend against more dangers to her child's health than those which usually threaten children of fathers whose earnings are low. The isolation of the Lithuanian group especially tends to keep the families from growing accustomed to their surroundings in this new country. Many of them have come from the free outdoor life of the farm to wrestle with crowded tenement conditions. The Lithuanians show the largest per cent. of babies fed artificially; they show also the largest per cent. of infant deaths caused by improper feeding, the neglect that comes with ignorance of modern hygiene, poor housing, combined, it may be, with summer heat against which other conditions have left the babies unprotected.

As a whole, Waterbury shows an infant death rate from preventable digestive diseases considerably higher than that for the Registration Area. The fact that modern hygiene knows how to prevent certain digestive diseases of babies is used as an argument for extending work that will give every mother the knowledge without which she can not protect the lives of her babies.

Waterbury has not ignored the need for such civic work. It has a visiting nurses' association,

and, since the survey was made by the Children's Bureau, the association has extended its work. Few of the Lithuanians, however, who appear to be most in need of wise direction and advice in adapting their mode of living to the conditions in their adopted land, have availed themselves of the organization's services.

The housing conditions in Waterbury were seriously congested, even before the influx of war workers. Disrepair of buildings, inadequate and faulty plumbing, infrequent and irregular garbage collection, a milk or food supply that is insufficient or impure must, the report states, be controlled by the city if its citizens are to be guarded from disease. Yet in 1914 Waterbury appropriated only about a third of the recognized minimum for the work of its health department and in 1917 it appropriated even less per capita, in spite of its growing population. Even the greatly increased wages do not enable Waterbury's population to purchase healthful living conditions, without which the health of the community and the lives of the babies in it can not be conserved.

HELPING PUBLIC HEALTH.

President Wilson, acting under authority vested in him by the Overman act providing for the coördination and consolidation of executive agencies, has issued an executive order, the significance of which seems to have eluded public attention.

The President has decreed that "all sanitary or public health activities carried on by any executive bureau, agency or office especially created for or concerned in the prosecution of the existing war, shall be exercised under the supervision and control of the Secretary of the Treasury." The purely military health functions of the military branches of the Government are excepted from the terms of the order, likewise "investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation and hygiene." With the exceptions noted, it places under the jurisdiction of the Treasury Department, which is exercised through the Public Health Service, all those agencies concerned in problems of sanitation and hygiene as far as they affect the war efficiency of the nation. It is a long step toward the creation of a Department of Health with a member of the cabinet at its head. It brings all the established health activities under one

general head. It charges with tremendous responsibilities the organization of the Public Health Service, of which Surgeon General Rupert Blue is the chief.

It is to carry out the ambitious plans of the Public Health Service that the President's order was written. It will enable General Blue to mobilize the civil medical forces of the Nation; to put into effect an outlined and detailed campaign looking to the maintenance of manpower at its highest standard of working efficiency. Its greatest promise is the incorporation into national policy of industrial medicine and surgery as a war measure—as an essential peace measure when the war shall have been brought to a close.

The history of the movement looking to this end is of practical interest. During the past ten years industrial plants all over the country have been developing agencies for medical service; during the past five years this movement has been receiving the attention of the progressive part of the medical profession and has come to be recognized as a factor of health and preventive work. Hundreds of plants are maintaining well-equipped and well-manned health departments, through which surgical attention is given immediately an accident occurs, thus shortening the disability period and reducing the danger of fatal results. As a natural development of the studies resulting from the new methods, it soon became evident to the industrial health officers that loss of life and loss of time through accidents were only minor factors in connection with industrial efficiency. The loss of time through illness more recently has been given broader attention and statistics have been gathered proving that this loss of time is seven times as great as the loss of time through accidents. Lost time from all causes, including willfulness, accident and illness, averages ten per cent. in the industrial plants of Ohio. It is higher in some States and in a number of the mills. Where the pay runs especially high it will run to fifteen and twenty per cent. In the well-organized industries which have maintained thoroughly equipped dispensaries it has been demonstrated that absence from illness can be reduced one-half or more. Here serious illness also is detected in its early stages; and where this serious illness could not be averted, at least its serious after-effects could be avoided. Already, in times of peace, this plan of industrial sur-

gery and medicine had come to be recognized as a social and economical principle; as a war measure its importance is patent.

More than a year ago the American Federation of Labor, through President Samuel Gompers, established a committee on standards for industrial sanitation. It is the application of these standards which is of present concern. But this movement originated with a section of the medical profession, not with organized labor. A small group of forward-looking men recognized its possibilities years ago. Dr. Otto P. Geier of Cincinnati is one of them and has been active in the movement since its inception. He figured it out from an executive point of view and submitted a detailed plan to the National Safety Council, fostering the creation of a health service section, which brought the industrial surgeons of the country together in one organization, and which resulted in 1916 in the formation of the American Association of Industrial Physicians and Surgeons, which now has a membership of 500. Its president is Lieutenant Colonel Mock.

A comprehensive plan finally was designed to give the Government and the people the benefit of the ripened experiences of the pioneers in the field. The National Council approved and created the Committee on Industrial Medicine and Surgery of the General Medical Board of the Council of National Defence, with Dr. Otto P. Geier as director and with Royal S. Meeker, commissioner of labor, and Dr. Franklin Martin, chairman of the General Medical Board, as members. It is largely due to the educational campaign conducted by this committee that the importance of the subject was brought to the notice of the President, resulting in the issue of the order which will make industrial sanitation a national policy throughout the duration of the war, placing its extension to all the war industries of the Government under the direction of Surgeon-General Blue of the Public Health Service. But one final step is necessary, the passage of legislation giving force to the need of expansion in the organization. Senate Joint Resolution No. 63, making due provision for it, creating a Sanitary Reserve Corps, has already passed the Senate. It has been favorably reported to the House, but occupies an unfavorable position on the calendar. Until the House acts, the activities of the Public Health Service will remain circumscribed. One of the first requisites will be

the appointment of a director of industrial sanitation and hygiene, with the rank of senior surgeon."

Dr. Geier believes that "the principles of industrial medicine and surgery intelligently applied can reduce this six per cent. loss to three per cent., making a gain of thirty workers on the job in every thousand. A cleaner plant and healthier workmen will result in a greater output per man. There will be a more sympathetic understanding between employer and employee; a better *esprit de corps*, resulting in a smaller turn-over. The protection of the health of the community is quite as essential as the health of workers. Fully thirty per cent. of the effective medical and surgical capacity of the profession has been drawn into the Army. Of the visiting hospital forces, twenty-four per cent. has been called into the service. This indicates that the civil population does not possess adequate medical service. Under strain of war conditions, disease and injury are increased. To meet this discrepancy, a method must be found by which every physician not in the army may give the maximum result with his minimum effort, so that the community may be protected. The placing of the physician in industry accomplishes that need. Applying his preventive measures to the large industrial unit on an intensive scale, the industrial physician assists the community in its health efforts, lessens disease, and lessens the strain on the physicians in private practise.

"To meet the problem the Government must provide against unnecessary human waste in industry and society: increase output by maintaining workers in good health; avoid preventable deaths and disabilities from accident and disease; restore in the shortest possible time full producing power to the sick and injured workers; provide healthful places in which to work; provide healthful homes and communities in which to live. The Public Health Service, under the President's order, will help lay out new towns, provide sewage and water, eradicate malaria, protect centres against epidemics, plan hospitals and dispensaries. It will take over the activities of the Shipping Board, which has already sought to organize a health and sanitation board of its own, look after sanitation of the military camps and adjacent communities, and assume some of the functions now assumed by the War Risk Insurance and the Federal Employment Compensation Commission."

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MEETING OF THE SECTION OF TUBERCULOSIS, JUNE 18, 1918.

SYMPOSIUM ON THE MASSACHUSETTS PLAN FOR CARING FOR CONSUMPTIVES.

I

THE STATE SANATORIA AND WHAT THEY PLAN TO DO.

BY ARTHUR K. STONE, M.D., FRAMINGHAM CENTER, MASS.

In the second annual report of the Trustees of the Rutland State Sanatorium the position was taken that it was the purpose of the State to maintain as far as possible an institution which should offer to its citizens an opportunity to recover health and strength and become self-supporting persons once more; and, by demonstrating the curability of tuberculosis in its early stages, to stimulate efforts towards the elimination of this preventable and yet most widespread disease. This recognition that the State Sanatorium should be a place primarily for cure, and to serve as a school where the person infected with tuberculosis should be taught how to live and conduct his life, so as

to be returned home in a condition to care for himself and serve as an example to those in his community of what can be done to cure tuberculosis, has been reiterated from time to time both by the trustees and by no less than four commissions which, at the direction of the Legislature, have made special study of Massachusetts' tuberculosis problem. However, in spite of this general working principle, the State Sanatoria have never been able, at any period of their existence, to carry out this plan as a distinct working proposition. When Rutland first opened its doors there was an overwhelming rush of people who wished to enter at once and to be cured, and at no time has there been 50% of the patient population that could be classed as in the favorable stages of the disease. The pressure for more beds for consumptives became so great that in 1907 three other sanatoria were ordered to be built, so that the present Board of Trustees of State Hospitals for Consumptives has under its charge 1065 beds. Nevertheless, this number of beds is not sufficient, even with the existing additional municipal hospital beds, to care for the number of tuberculosis patients applying for admission. And never has there been a longer waiting list than during the past winter.

In spite of all attempts to limit as far as possible the patients admitted to Rutland to those

in the favorable stages of the disease, there has never been at the institution the large group of patients in the early and favorable stages for whom the sanatorium was intended. Indeed, it has seemed during the past two years, since the speeding up of all manner of work throughout the State, that the patients were coming even in a more advanced stage than ever before. Certainly for the past two winters North Reading has had 40-45% or more bed cases, when provision is made for less than 30%, so that at present we are having to refuse admission to patients who should be in a hospital because we feel that we cannot give such cases adequate care and treatment. Thus, in spite of the desire of the trustees, it has never been possible to do the work which it was hoped to do; we have been forced to do work that has amounted practically to segregation of patients, the protection of the public and the care of far advanced cases rather than active sanatorium work.

As all of the institutions are built for sanatorium treatment rather than for hospital treatment, the work in many ways has been very discouraging. In spite of all these handicaps, we have held resolutely to the idea that it was the function of the State to provide a place for cure, and we have endeavored, as far as possible, to maintain, against all discouragements, a sanatorium standard of work.

It was hoped when the program for this meeting was first planned that we should have within a short time nearly 700 new beds with the development of the County hospitals and the building of the so long delayed Lowell and Brockton hospitals. At the present time, it is doubtful exactly when these will be erected. At this meeting it was thought advisable to discuss the relation of the State sanatoria to the Municipal and County hospitals. The four State sanatoria should do distinctly sanatorium work, *i.e.*, they should first of all have a group of patients in the early or favorable stages for recovery, this group to be devoted to the idea that their chief business and aim in life is the recovery of their health. This *esprit de corps* is one of the great fundamental needs for the conduct of a sanatorium. On the part of the institution itself there should be a devoted and intelligent service rendered by the physicians and nurses. This medical and nursing supervision should be further developed by all the

necessary adjuncts for good medical work, *i.e.*, a laboratory, with a good technician; x-ray outfit, proper opportunities to do all laryngological and dental work necessary, and further, there should be suitable school and workroom facilities for the sufficiently convalescent patient to avail himself of if he does not wish to return to his former occupation. In addition to this amusements should be furnished so that time will not hang too heavily on his hands.

To accomplish all this will mean a broadening of the present institutions. Such broadening can come only when there is an absolute demand for real sanatorium treatment on the part of the patients, and when such a demand can be shown to exist I am convinced that the Legislature will be ready to meet all the requirements of the case. At present it is realized that segregation is the great work of the institutions and so long as there is simply the demand for this segregation, or a chance to live and a reasonable chance of recovery for those who wish it, nothing more will be done than is being done at the present time. The development of the institutions must come from the general morale and demand of the patients themselves, and must not be foisted upon them by the administration. To accomplish this the county and municipal hospitals, when there are sufficient beds, should relieve the State sanatoria of a certain number of persons who will not fit into this active program of rehabilitation. The sick should be taken care of near their homes and the hospitals should be conducted in such a way that everyone who wishes to enter should have a fair opportunity of getting well, and then when he passes into the distinctly sanatorium class may be transferred, if desired, to one of the State institutions. In addition, when there is a sufficient number of beds to care practically for all the advanced cases seeking hospital treatment, there should be every facility offered, providing there is still a pressure for admittance to the State sanatoria, for sanatorium work and the care of children to be done at the various hospitals. Patients, on the whole, had best go directly on the discovery of their disease to the municipal or county institution and there be studied by trained superintendents, who, as they show favorable progress, may transfer them to the State sanatoria. Thus there should be no waiting on the part of the patients before they get under

treatment, and the loss of the few weeks, which is so distressing at the present time, will be avoided.

There should be close coöperation between the superintendents of the State sanatoria and the superintendents of the county and municipal hospitals, and conferences should be held from time to time at some of the centrally located institutions in order that the various hospitals and sanatoria may have a close working understanding with each other.

With the extension of the after-care work by the State Department of Health, the bracing up of the dispensary system, and the coöperative development of the county and municipal hospitals with the State sanatoria, it is hoped that there will be a more rapid turnover of patients than is possible at the present time. Patients can be sent home on parole with the definite feeling that they are to be properly supervised and in case of necessity can be readmitted to some institution immediately. At the present time many convalescent cases are held much longer than would be necessary were it assured that the case could immediately be cared for provided things should go unexpectedly wrong.

In certain parts of the State, doubtless, there will be development of children's work or other phases of hospital work, as has been the case in New Bedford, but this can take place only after practically all the advanced cases of tuberculosis are in institutions. This can come about only after thorough, patient, persuasive work on the part of the dispensary nurses or follow-up workers.

Several times this year it has been brought to the notice of the State Board of Trustees of Hospitals for Consumptives that communities felt that they had no tuberculosis problem. Investigation, however, has always shown that it was simply buried and not recognized, and that there is no community that can pride itself that it has no tuberculosis in its midst. On the contrary, every investigation such as the Framingham Community Health Demonstration or the New Bedford Survey and other studies has proved the existence of much unsuspected tuberculosis. It is present if only it can be properly investigated and brought to the light.

It is the desire of those connected with the State sanatoria to conduct institutions for the

careful, accurate and scientific treatment of favorable cases and to endeavor in every way possible to return the patients with all speed to the care of their home physicians and their families, relying on the close coöperation of the other agencies of the State for after-care work, and to extend in every way possible by consultation or other help the bringing about of a thorough working coöperative system, which in its turn shall help carry out the ideas of the State Department of Health.

DISCUSSION.

DR. W. P. BOWERS, Clinton: When it was first established that the policy of the State was to develop a series of municipal hospitals, which would be planned in coördination with the State Sanatoria, Clinton, where I live, which has a general hospital, wishing to bring itself into conformity with this scheme, developed a local tuberculosis hospital; and that town being a center for seven other towns, expected coöperation from these other towns, because it placed its hospital at the disposal of all the other towns. But although these towns took advantage of the general hospital, they took no interest in tuberculosis. The result is somewhat disappointing. As you listened to the first paper, I think those who read between the lines could also realize a sense of disappointment, perhaps, on the part of the writer.

With the development of the tuberculosis problem in Massachusetts, it is incumbent upon us to consider what reasons we may have for disappointment. It has occurred to me, as I study the local situation and the situation throughout the State that the disappointment comes very largely from lack of coöperation on the part of the lay and professional public, and also from lack of coördination between the sanatorium and the local hospital.

Now the difficulty with the lay public is that they have begun to lose interest in the tuberculosis problem. It was a very attractive proposition at first when it was shown that there were a great many cases of tuberculosis which could be cured; but when it became demonstrated that there were also a great many cases that could not be cured, there began to develop a certain amount of indifference.

Consumption is as it always has been. The pendulum has seemed to swing back. It is the

function of tuberculosis organizations to educate the lay mind into active understanding of the real view of the tuberculosis problem.

The medical attitude is also disappointing. Like the lay public, the medical men had to be educated. They were educated to a certain extent. They became enthusiastic and then began to lose interest, partly because so many other matters came up which have engaged the attention of the medical men. We find the same conditions now relative to tuberculosis as still persist with many other diseases. It was said at one time, you know, that after a few years there would be no neglected cases of appendicitis, but cases still drift in which have gone beyond the curable stage.

So tuberculosis cases occur in many communities where a diagnosis has not been made promptly. Perhaps one may almost feel that there has been a general negligence.

Now the points we must develop are—first, more active coöperation on the part of the lay public and the physicians. Second, coördination of the State with local sanatoria. It does not seem to me that the officials of the State sanatoria can properly exercise their best functions until they make a definite survey of the work done in the local sanatoria. The local sanatoria should be to a very large extent under the direct supervision of the State sanatoria; and officially the State sanatoria should have power to inspect local sanatoria in order that there may be a certain amount of coördination and coöperation, and especially uniformity in the treatment which may be found to be beneficial.

You know all smaller institutions are following the lead of progressive ones, and progressive ones must be lifting them up all the time.

DR. E. R. KELLEY, Boston: Because I think it must be a matter of very deep interest to all concerned, I should like to confine my remarks to the status of the county tuberculosis hospitals. We have had a great deal of discussion and agitation and difference of opinion relative to tuberculosis hospitals finally formulated into the definite policy of this State which Dr. Stone outlined, and this has been translated by legislative action into law; and the authorities on whom is imposed the duty of carrying out the provisions of this law, proceeded to prepare plans, select sites, and erect

institutions with reasonable degree of diligence. I am sorry that they did not use a little more, for about six months' earlier progress would have enabled us to escape from the dilemma in which we now find ourselves.

As we are involved more and more in the war we come across the great question of raising the capital to be invested in the governmental loans for the prosecution of the war. For this reason the Federal Reserve Board has mobilized its control of capital issues by the Capital Issues Committee. Today no bonds can be issued in this country without the approval of the Capital Issues Committee. They have taken the ground that nearly all bond issues, aside from government, must stop. By refusing to approve bonds they have stopped the building of county tuberculosis hospitals in New York, New Jersey and Massachusetts, and many similar projects, such as large municipal institutions, schools, and parks.

These are courteous gentlemen to talk with. They say the plan is very fine; that it is a splendid idea to make tuberculosis hospital provision, and to judge from all reports that it is a very splendid scheme to have a permanent type of construction such as nearly all our counties have adopted. They will say, "We appreciate that the cost is reasonable in view of the general increased cost of construction, but we do not intend that you shall have the money." There is where it stops.

We finally convinced them that the institutions pretty well under way should be finished, so I think Bristol, Plymouth, Norfolk, and Barnstable County, being well advanced, will have an opportunity to finish theirs. The Capital Issues Committee also said that they will be willing to approve a temporary type of construction; but we have never been able to get their opinion as to just what type of construction this means.

As near as can be determined, to construct rough structures, which would be suitable at all when finished, would cost 40 per cent. to 50 per cent. of total cost for a permanent type of construction, and I think the county commissioners are wise not to construct until they can erect a permanent type of construction.

DR. E. B. EMERSON, Rutland: The management of a sanatorium is merely the running of one of the cogs in the machine. At the present

time, as I see the sanatorium side of the question, there are three points that occur to me as to the value of the sanatorium. First, education of the patient; second, a place to care for absolutely helpless dependents; and, third, the least important, is the chance to cure a very small percentage of cases.

It is the general impression throughout the State that Rutland receives only the curable cases,—the absolutely favorable cases,—and that when one has a cough he cannot get into Rutland. The following figures should, I think, in a measure offset this idea.

Of the 431 cases admitted during the year ending November 30, 1917, the application blanks indicated 333 incipient, 93 moderately advanced, 4 far advanced, and one not classified. Of this group the Rutland classification was—176 incipient, 187 moderately advanced, 56 far advanced, 6 non-tuberculous and 6 not classified.

Of the 245 cases admitted from Dec. 1, 1917, to May 30, 1918, the application blanks indicated 171 incipient, 71 moderately advanced, 2 far advanced, and one not classified. Of this group the Rutland classification was—69 incipient, 103 moderately advanced, 69 far advanced, and 4 not classified.

There are several reasons for this variation in classification. First, there is necessarily a lapse of three or four months between the filing of an application and the admission of the patient, and during this time there is opportunity for the disease to progress, but not as a rule from the incipient stage to cavity formation. Second, physicians in their anxiety to have their patients admitted fail to indicate on the chart, which is a part of the application blank, the chest findings, and possibly another group is unable to interpret the physical signs. During the past six months there has been a running average of one hundred and fourteen bed cases, and an average of two or three deaths a month. From the foregoing figures it is readily seen that the majority are not favorable cases for arrest or cure, although many improve sufficiently to return to their homes and former occupations.

One of the speakers referred to occupation, and brought up the matter of nursing. We have been running a training school at Rutland for several years. The school is recruited from among the female patients who have

been fortunate enough to obtain an "arrested ease." We have at the present time thirty pupils, who, with one or two exceptions, are ex-patients. They receive a two years' training, and we cannot supply the demand of other sanatoria for their services. There is a great demand for nurses for sanatorium work, and the training of ex-patients opens up a grand occupational field, particularly for women. I have been called upon for nurses within the last four months by half a dozen sanatoria.

II.

THE RÔLE OF THE COUNTY TUBERCULOSIS HOSPITAL.

BY OLIN S. PETTINGILL, M.D., HEBRON, ME.

IN this great field of endeavor to prevent and cure pulmonary tuberculosis, the work of the institutions is two-fold. They should provide beds for restoring cases in the curable stages of the disease to health and to a wage earning capacity, and should care for those in the progressive and permanent invalid class so that they will not infect others. From the standpoint of prevention, all cases may be divided into those with expectoration containing tubercle bacilli and those without tubercle bacilli in the sputum. The majority of patients in the incipient stage have a closed type of lesion, and while in this condition proper treatment offers by far the greatest hope of permanent recovery. The responsibility of the community and the commonwealth is to see that every preventive measure be taken to keep this type of case from becoming an open lesion. The positive case presents the greatest immediate danger to the community especially if there are children at home who come into intimate contact with the sufferer. If a patient with an open lesion and a severe cough lives in the average home, unless the utmost care be taken about coughing and the disposal of the sputum, small children about the house are markedly exposed to infection. There should be a hospital bed available for every case of this kind as soon as it is discovered. Where the beds for these different types are to be provided is now the question.

LIMITS OF STATE SANATORIA.

State sanatoria should be reserved for the incipient and the moderately advanced cases with a good prognosis. The number of strictly

incipient patients admitted to public institutions of all kinds in the East for treating tuberculosis is small compared with the total. Thirty-eight per cent. admitted to the Rutland State Sanatorium during the year ending November 30, 1916, were classified on admission as incipient. At the Western Maine Sanatorium at Hebron, Me., fifteen per cent. of the cases admitted during the same year were classified as incipient. Most State sanatoria are located in parts of the State best adapted climatically to open air treatment of lung diseases but are often far distant from the homes of some of the patients and hard to reach. It is also difficult for relatives and friends to visit dying patients because of the location. Furthermore, it is not to the advantage of either group to be treated in the same sanatorium. Strictly early cases applying for admission to State institutions being comparatively few, the State sanatoria should reserve their beds for this class and be able to serve all parts of the State alike.

LIMITS OF CITY HOSPITALS.

A few years ago, nearly all cities provided a reasonable number of hospital beds for surgical and medical cases, but made little or no provision for the treatment of pulmonary tuberculosis, the greatest destroyer of life,—a disease which killed more last year among the fighting nations of Europe than were killed in actual combat. The number of beds in the State sanatoria being inadequate, the tuberculosis hospital law of 1910 was passed which states—"That every city shall, and town may, and at the request of the Board of Health, shall establish hospitals for its own tuberculosis sufferers." This left the small towns insufficiently provided for, though, in many instances they contain just as many cases in proportion as the large cities. In some of the cities coming under this law, the hospitals provided are small and, therefore, expensive per capita to maintain. Owing to their size, it is too expensive to provide an elaborate equipment and an expert medical staff in constant attendance. They are often in or near the city limits, but do not have the advantages of the country surroundings and climate.

COUNTY SANATORIUM LAW IN MASSACHUSETTS.

After the failure of some of the cities and towns of Massachusetts to make provision for

their tuberculosis cases by erecting their own hospitals, a bill was introduced for the establishment of county hospitals, in place of a town or city unit. The result was that an investigation was ordered by the Legislature to be made by the Department of Health of the Commonwealth of Massachusetts, and particularly to report on the feasibility of a county unit. The outcome of their report was the enactment of Chapter 286 of the General Acts of 1916. Section 1 of this Act provides,—“That the County Commissioners of each county in the Commonwealth except Suffolk, Nantucket and Dukes County, are hereby authorized and directed to provide adequate hospital care for all those persons residing in cities or towns having less than 50,000 population as determined by the latest U. S. census, within the boundaries of their respective counties, who are suffering from consumption and in need of such hospital care, and for whom adequate hospital provision does not already exist.”

COST OF MAINTENANCE OF COUNTY SANATORIA.

The law provides that the cost of construction, maintenance and repair of the county hospital shall be apportioned to the cities and towns in the county served by the hospital according to the valuation used in assessing the county taxes. In January of each year, the county commissioners will determine the cost during the preceding year and issue their warrant against the cities and towns for the percentage due from each.

PATIENTS: HOW ADMITTED.

Patients shall be admitted to the county hospitals through application by the Boards or Departments of Health of the cities and towns served by the hospitals. The details of this provision for admission will be worked out for each hospital district when once in operation. Patients may be admitted who pay for their care in whole or in part on terms fixed by the Trustees: but all patients shall be admitted in the order of their application and no preference be given to paying patients over others.

COUNTY SANATORIA IN MASSACHUSETTS.

At the present time, as far as I can ascertain, of the ten counties in Massachusetts which come under this law, Norfolk, Plymouth and Bristol counties have their hospitals now under construction. The construction at Middlesex

has been indefinitely postponed. Worcester county has employed an architect to make plans. Hampden, Berkshire and Franklin have made contracts with the county of Hampshire to care for their patients. Hampshire constructed a hospital a few years ago and is now building an addition to make room for its new contracts. Barnstable has a building nearly completed.

The County Commissioners of Essex County have purchased fifty-two acres of land in the town of Middleton on the trolley line between the cities of Lawrence and Salem. The site of the new hospital has an elevation of 200 feet above sea level and is on the southern side of a pine covered hill. The plans call for an administration building, kitchen, dining-room, power house, and two ward buildings, and will be equipped with an x-ray department and laboratory. When finished it will accommodate about 200 patients. At the present time, the foundation and grading are practically completed.

COUNTY SANATORIA IN STATE OF NEW YORK.

It may be of interest to review briefly the county sanatoria movement in New York State. There are sixty-two counties in New York State; of these, fifty-seven are termed "up state counties" and the remaining five (Kings, Queens, New York, Bronx and Richmond) make up the greater city. The five counties which make up greater New York, have their own facilities for the care of the tuberculous sick, while the remaining fifty-seven in the State are subject to the New York State County Tuberculosis Hospital Law. Of these fifty-seven counties, nineteen have hospitals for tuberculosis within their borders established under the county hospital law. The first established under this law was the Seneca County Tuberculosis Hospital, which was opened in December, 1909. The State of New York assumes the care of the incipient cases at the Raybrook State Sanatorium. The county hospitals treat all classes of cases, but are expected primarily to care for moderately advanced and far advanced cases.

WORK OF THE COUNTY SANATORIUM OR HOSPITAL.

In Massachusetts, the county sanatorium or hospital should treat all types of the disease as the occasion demands. There is often valuable time lost while acute early cases and patients with acute exacerbations of their disease are

waiting for admission to State sanatoria. These and other emergency cases should receive prompt admission when possible. An arrangement should be made so that patients in the State sanatorium, who have gradually progressed may be transferred to the county sanatorium. On the other hand, patients at the county sanatorium who, on observation, have been found to have a good prognosis, may be transferred to the State sanatorium. Admitting all classes and conditions of patients with possibilities for transferring will help the hospital from acquiring that hopeless atmosphere which is often present in hospitals for advanced consumptives. The number of hospital beds for moderately advanced and far advanced cases is inadequate in nearly all of the counties and cities of the United States. Of course, with this class, the good results which the State sanatoria achieve by returning arrested cases to their homes with a complete or partial earning capacity, cannot be expected, but the usefulness of the sanatorium will be just as real in diminishing infection through isolation of carriers.

This type of institution with its country surroundings and the nearness to the homes of the patients would be an ideal place for locating a unit for tuberculous children. The county sanatorium being thoroughly equipped with means for early detection and for a study of the disease, should be an inspiration to the anti-tuberculosis workers of the county, as well as a source of interest to the general practitioner and all students of the disease. A temporary patient class might be maintained to which physicians could send their doubtful cases for observation to verify their diagnosis. Thorough "team work" among all anti-tuberculosis forces, including the dispensaries, district nurses, the local anti-tuberculosis societies and physicians, is a prime necessity for accomplishing best results; and the county sanatorium with its specially trained staff, should be the centre of the district, each hospital district coördinating with the others and with the general plan of the State.

DISCUSSION.

DR. B. H. PEIRCE, Cambridge: I think the question of the county tuberculosis hospital is largely in connection with the local problem. As I listened to Dr. Pettingill and Dr. Locke,* it struck me very forcibly that what Dr. Locke

* See JOURNAL, page 263.

said might well apply almost entirely to the county tuberculosis hospital. The province of the county hospital is with the advanced class, without doubt.

The county hospital is simply the getting together of several communities or several towns to do what the large city is able to do for itself. I think that one of the important things, one of the ways in which the county hospital can be of advantage is in getting education into the country towns. Let the people know something about the movement, of the State plan to provide for help in these communities.

One thing that ought to be emphasized which Dr. Pettingill brought out is that patients should not be too far from home. This is one of the great difficulties which I have seen. The patient is quite willing to go where a relative can come to see him, or where he may possibly get home once in a while, which would be the case with the county hospital. He will not go a long way from home, where he cannot see his friends. I feel it is important to make him happy, to make him contented and have him go back into his home town feeling so, and spread the good news so that others, who should go, may be willing to undertake it.

Coöperation between the county hospital and the local practitioner I think can be used to great advantage, and I believe that it is possible by earnest endeavor largely to obviate the point that Dr. Emerson has just spoken of, making application without giving complete information. The temporary class that Dr. Pettingill mentioned would be a great means of helping along to the end.

DR. A. J. ROACH, Tewksbury: Dr. Pettingill has covered so thoroughly the scope of the county tuberculosis hospital that it seems almost impossible to find anything which has not been touched upon.

I agree with Dr. Pettingill that the county sanatorium or hospital should treat all stages of the disease as the occasion demands, and that the State sanatoria should be primarily reserved for the early and favorable cases.

Dr. Pettingill's suggestion that an arrangement should be made so that patients in the State sanatoria who have gradually progressed may be transferred to county sanatoria is a good one, especially so if the patient returns nearer to his home and relatives. On the

other hand, patients at county hospitals who, after observation, have been found to have apparently a good prognosis, I think should remain in the county institution unless there is some good reason for transferring them.

I assume that Dr. Pettingill feels by this arrangement that there would always be a number of favorable cases in the county hospital as it would be some time perhaps before there would be beds available in the State sanatoria. However, I feel that it is always well to have some favorable cases in hospitals which primarily are intended for far advanced cases, indefinitely, to act as a stimulus, especially to those who are pessimistic and indifferent. If it became generally known that the county institutions were intended for far advanced and hopeless cases only, and the reports showed very little improvement and perhaps no cases of arrest or discharge, it seems to me that the public would soon become reluctant about sending their relatives and friends there.

I have always found it very difficult to transfer patients showing signs of progressive failure to the terminal wards. Very frequently they become indifferent and pessimistic and lose whatever determination they may have had. There are times when they will refuse to go, and send for their relatives to take them home.

While we have only a very small percentage of favorable cases at the State Infirmary, about 5 per cent. incipient and 15 per cent. moderately advanced, they relieve that hopeless atmosphere which would exist if they were all far advanced cases. And during the present crisis we have had to depend upon them more than ever to help out on the wards on account of the lack of nurses and attendants.

In regard to admitting patients to the county hospitals, it seems to me that a method similar to that employed by the trustees for the State sanatoria should be adopted, the details of which can be worked out when the hospitals are in operation. The patient should have a recent physical examination and a blank similar to the one now in use should accompany the application from the Boards of Departments of Health. This will greatly facilitate in classifying patients on admission.

The thing that impressed me most in Dr. Pettingill's paper was his proposed unit for the observation of tuberculous children. While-

the number of such places is gradually increasing throughout the State, they are still, however, inadequate and we cannot have too many of them. I feel that all the county hospitals should be equipped for doing this work.

DR. A. S. MACKNIGHT, Fall River: When the Resolve requested by the Legislature of 1915 was acted upon by the State Department of Health, and the Report forwarded to the Legislature, it stated that County Hospitals should serve the people within their respective county jurisdictions,—in other words, that they should “fit in” the zone of towns and cities, of less than 50,000 population, to furnish adequate hospital care for cases of consumption. Unfortunately, but three counties have taken up and acted upon the legislation passed at that time. There is another feature that occurred to me, and that is, that the Hampshire County Hospital Act and the Barnstable County Hospital and Infirmary Act, are special enactments, and do not apply to counties as a whole.

I think it would be a good thing if we had uniform legislation, that is, if we could have all hospitals under Chapter 286. If we are going to get the best results, we ought to work within a very definite piece of legislation. I would suggest, therefore, that the proper thing is to have that brought about.

Another thing is, that the county hospitals should serve as one link in a three-link chain, *c. g.* the State, the county, and the municipality. It is very evident, from the progress made, that the county hospital is not going to be the last link in that chain.

Municipalities usually come in at the end of the line. Why are municipalities permitted to lag in the construction of their local tuberculosis hospitals? It seems to be a piece of negligence not to provide city hospitals wholly for tuberculosis, as we find the greatest number of cases in municipalities where there are congested sections.

It is a noteworthy fact that, when municipalities become somewhat stringent with their tuberculosis cases, the latter pass over the city line, on the suggestion of the physician, and get out into the open country, eventually dependents of the local towns. In support of this, I might cite that, in one county within the district, a comparatively small town called up the other day, reporting ten cases of tuber-

culosis, for which they had no way of providing hospital care. Another very small town, where we thought there were no cases of tuberculosis at all, showed three. One man, who escaped from Peabody, was living in a family, with six or seven small children, happy in the thought that he had not been discovered, until the local board found him. He then refused to sign an application for Lakeville, or to return to his own town. That is the situation in most of the small towns which county hospitals are supposed to serve.

Dr. Kelley touched upon the Federal Reserve Board, and the Capital Issues Committee. I think it would be a good piece of patriotic work (and we are just as patriotic as other people, even though interested in tuberculosis work), if all tuberculosis workers could be gotten together in an effort to persuade and to work with this Capital Issues Committee.

We are certainly pushing the tuberculosis problem backward when we fail to provide hospitalization for cases of tuberculosis. It seems to me (although it might have no weight with that committee) that we ought not to be obliged to take a backward step in this matter of “Capital” versus “Tuberculosis.”

III.

LOCAL MUNICIPAL TUBERCULOSIS HOSPITALS.

BY EDWIN A. LOCKE, M.D., BOSTON.

SCARCELY a generation has passed since the beginning of the present anti-tuberculosis movement, and yet the scope has become not only national but world-wide. The control of the efforts against the disease in consequence of its broad expansion has almost entirely passed from private to public agencies. Accumulated experience has served in part to determine finally the main principles of general policy, but unanimous opinion on all points is not yet possible.

There is ample proof of the paramount importance of tuberculosis as a public health problem in the overwhelming evidence that nearly all individuals acquire some degree of infection with tuberculosis and that this is usually a consequence of direct contagion in early life.

By reason of the widespread nature of the disease, as well as its dependence on numerous

general factors influencing its spread, the problem of the control of tuberculosis is the most complex and difficult of all those concerning public health. In the main these factors are such as to be most effectively met by local effort, and we have come to regard the matter more and more as a community affair. While the state or federal government may well assume a directing or supervising function, the real activities against the disease should be organized and controlled by the communities themselves.

No specific treatment or method of inducing immunity has been discovered, and, in fact, the results of much careful research leave us with the impression that any adequate means of producing either of these results is more than ever improbable. Now, as formerly, therefore, the keynote of all anti-tuberculosis organization should be prophylaxis. If any proof of the soundness of the preventive measures previously adopted is needed it is furnished by the study of the work in many fields during recent years. Results generally point to the individual with active tuberculosis, whatever the stage of his disease may be, as the essential focus or cause of its spread.

Since it is now generally admitted that in the great majority of cases of infection with tuberculosis the implantation takes place in infancy or early childhood and that infection in adult life is relatively rare, the preventive measures should clearly be directed to the protection of the child in early years. So important are these considerations, to my mind, that they almost overshadow all others and indicate a very radical revision of our established program of anti-tuberculosis work. Two methods of affording protection in the early years are possible. First we may attempt by various means to increase the general resistance of the child and, second, to protect the young from contagion by segregating the consumptives. Of the two the former seems to me to be of far greater importance than the latter. It is largely out of consideration for the child that the provision for isolation of the open cases of tuberculosis should be provided and find a place of prominence in every local program. The best opinions appear unanimous on this point.

"It is felt everywhere in this country that the institutional care of the advanced case is

perhaps the most fundamentally important phase of the whole problem." (Biggs.)

"Out of the many conflicting opinions and theories as to the best means of combating the disease, one distinct method has come to be universally recognized as essential to ultimate success—segregation—and as a logical result of this, its concrete expression in the means for segregation—the hospital and the sanatorium." (Williams.)

With these statements I am heartily in accord. It is obvious, however, that it is unnecessary to segregate all persons with active tuberculosis. A large percentage can, under favorable conditions, be treated safely in their homes. The early case should be sent to the sanatorium. Many can be supervised effectively by the tuberculosis dispensary. The special local hospital should be provided particularly to furnish care for those who cannot be treated safely by the above means, in other words, for those who are a menace as possible foci of infection. A considerable experience with the so-called "incurable consumptive" has convinced me of the wisdom of compulsory segregation. A further and important function of the local hospital is to afford institutional care for the destitute consumptive who, in many instances, is dangerous to others only in consequence of poverty.

I have spoken of these as local hospitals. There is a wide difference of opinion as to whether these institutions should be maintained by and under the supervision of the state or local authorities. My views may be challenged by some, but I venture the statement that large State hospitals for the advanced cases have yet to demonstrate results which are wholly satisfactory. There seems to be strong evidence, on the other hand, that much more effective work can be done by the municipal and county hospitals, and this is our present state policy.

Assuming that local hospital accommodations should be made available for all consumptives whom it is deemed necessary by the health authorities to segregate, how shall the financial burden be distributed and how shall the hospitals be placed with regard to the centers of population? But few states have adopted any definite policy. Clearly, the rural communities cannot be expected to maintain individually a special hospital with but a few beds, as the relative cost would be excessive. Our Massa-

Massachusetts laws wisely provide for the combination of small towns by counties for this purpose. The law of 1911, as amended in 1912, says, "Each city shall, and each town may, and upon the request of the State Board of Health, shall, establish and maintain constantly within its limits one or more hospitals for the reception of persons having smallpox, diphtheria, scarlet fever, tuberculosis or other diseases dangerous to the public health as defined by the State Board of Health, etc." A law enacted in 1916 permits the cities of under 50,000 population which were not already maintaining a tuberculosis hospital, to come under the county plan.

The advantages and functions of local tuberculosis hospitals for advanced cases may be summarized as follows:

1. By providing for the isolation of the consumptives dangerous to others, they make it possible to clean up their homes and thus to eradicate the centers of infection.

2. They offer an asylum for the helpless, where they can be given the best of hospital treatment.

3. The expert medical care, constant supervision, moral control and provisions for appropriate diet and open-air treatment offer the best possible hope of cure.

4. They possess a very important educational value to the local physicians.

5. As in the case of the sanatoria, they have an important educational function also as regards the patient and the community generally.

Whether or not these institutions should form a unit of a general or contagious hospital is not so much a matter of choice as of circumstances.

It cannot be too often reiterated that, as important as they are in themselves, these chronic hospitals must not be planned except as a part of a general program, one of many closely coördinated agencies. They are an essential gear, but not the whole machine. Never should the hospital be established except in the closest possible connection with a tuberculosis dispensary, for their functions are inseparable.

I have been asked to discuss the strictly local or municipal hospital, but in the limited time assigned me it will be possible to consider only the most essential features.

A. *Name.* A seemingly insignificant matter, the question of a name for the institution,

has become in actual practice one of considerable importance. It is surprising how generally the public is prejudiced against the hospital known by the title of "consumptives' hospital." The exact name is of little or no moment so long as the word "consumptives" is avoided. The choice of the term "sanatorium," even though a misnomer, has much to recommend it, inasmuch as it suggests the hope of cure, an ideal which should always be kept in the forefront, even in the hospital for the advanced.

Likewise, it is very desirable that the hospital be as accessible as possible with respect to transportation, preferably within city limits and attractively placed. All these considerations contribute greatly to the readiness with which patients can be persuaded to enter the institution.

B. *Size of Hospital.* The proper ratio of the number of beds to the population of the city is variously estimated. On the whole, the most reasonable basis is one founded on the number of yearly deaths from the disease. In the early years of the municipal hospital it was stated as a reasonable rule that the number of beds should equal from one-fourth to one-third of the mortality figures. Recently several authorities have put the ratio as high as one to one, that is, the bed capacity should equal the number of yearly deaths from tuberculosis.

From our experience of a decade in Boston, it is my conviction that the capacity will be found reasonably adequate if the number of beds provided be one-half the number of deaths for a given year. If the hospital is built on the pavilion plan, the bed capacity can be readily increased as the pressure for beds indicates. The number of beds in the Boston Consumptives' Hospital is about 40% of the deaths from pulmonary tuberculosis for the year 1917, and needs for increasing the size of the institution are not urgent.

C. *Cost.* It is utterly impossible to formulate any accurate basis of cost, since any such figures must vary greatly from year to year and in different parts of the country. The actual cost of many such hospital plants has varied from a few hundred to several thousand dollars per bed. Furthermore, since there is no common basis of estimating the cost, figures for different hospitals cannot be fairly compared. At best, the necessary expenses are

considerable. The economic losses from tuberculosis are fairly staggering, and we must face the inevitable fact that the cost of combating it is great, but in the long run a reasonable investment for the municipality.

On general principles, a hospital plant for the treatment of tuberculosis should be built for permanency, as the most sanguine view of the results of efforts to combat tuberculosis must admit that for many decades the reduction in the death rate, even if the present rate of decline continues, cannot very materially lessen the needs for beds. The best in the long run is the cheapest. The institution should be planned with particular consideration as to durability, efficiency in administration, and to permit of future expansion.

D. Types of Buildings. So far as I am aware, the best authorities favor the pavilion type of ward building and of essentially fire-proof construction. Cleanliness and disinfection are vital considerations. The patients are to be largely of the advanced stages, who will need hospital care in the strictest sense, and the facilities for such treatment are quite as necessary as in a general hospital. If the hospital is to consist of several pavilions a few may wisely be arranged with large open wards, but for the most part, a far more satisfactory scheme is the division of the otherwise single ward into small rooms to accommodate from one to six patients. By this latter method the total number of beds can be as great as with the open wards arrangement.

Every provision for open-air treatment is as vital as in the sanatorium. The rooms can easily be arranged to permit of every bed being wheeled out to an open veranda, as is done at the Boston Consumptives' Hospital. Naturally, a certain number of the actually dying cases can best be left in their rooms, but generally speaking, the advanced case should be kept in the open air.

For a considerable percentage of the cases to be treated in the local hospital, the expensive pavilion type of wards is not only entirely unnecessary, but less well adapted than the so-called "cottage ward" (modified "lean-to"). This can be constructed for but a small fraction of the cost of the pavilion. Naturally, the type best adapted to treatment in these cottages is the ambulatory, and, as a rule, afebrile patient. At some municipal hospitals bed cases

are also treated in such wards, and the results are reported as satisfactory. At our own municipal hospital these cottage wards have been in use for nearly ten years and have proved so satisfactory that we have gradually increased the proportion of them until at the present time they comprise approximately 45% of the total bed capacity. Not only are they much cheaper to construct and maintain, but are vastly more popular with the patients. The sanatorium ideal is more easily carried out here than in the pavilion wards.

Every municipal hospital should include a special ward and preferably an entire ward building, for infants and children. The needs for treatment at this age are so different in some respects from those of adults that a distinct unit is desirable. The plan of treatment, in order to be satisfactory, must include regular school work in an open-air schoolroom and supervision of recreation, supplemented by such activities as nature classes and manual work.

E. The general equipment should be no less complete than that of the most up-to-date general hospital for acute diseases, *i.e.*, a modern hospital in every sense. Not only should this equipment include a full outfit for clinical laboratory examinations but for research as well. No hospital, whatever its type, fulfills its proper function which does not make some contribution to medical knowledge. I believe that the municipality may just as reasonably provide funds for research as for the care of patients.

An efficient x-ray department is also a prime essential. Surgical emergencies occasionally arise, and these, together with a regular amount of elective surgery, make it desirable that every tuberculosis hospital should be provided with surgical equipment. Chronic cases of bone and glandular tuberculosis receive but scant attention in the general hospitals, and it would seem advisable to have beds definitely set aside for such cases. Not only should they have the advantage of modern surgery, but in some instances at least, the same reasons for isolation exist as in the case of the pulmonary type of the disease. Certain of the surgical problems are more or less orthopedic, and in the larger hospitals an orthopedic department may be desirable. If the number of post-mortem examinations is considerable, a resident pathologist should be included in the medical personnel.

The medical administration, because of its narrow and special nature, will not attract the best clinicians of the city, as do the acute general hospitals. The tuberculosis hospital is, therefore, forced in self defense to adopt the system of a paid resident staff. An arrangement most generally in vogue is to place the medical work in the hands of a resident physician and as many assistant resident physicians as are needed to supervise properly the treatment of the patients. The ratio of medical residents to patients should be at least one to one hundred, and preferably one to fifty. In large centers, where there is a medical school, a close affiliation between the school and hospital is always of mutual advantage. At the Boston Consumptives' Hospital, for example, where a working agreement between the hospital on the one hand and the Harvard and Tufts Medical Schools on the other, exists, the terms for the assistant residents have been made only six months, in the hope of attracting the best young graduates in medicine who will be willing to devote this time for special training along these narrow lines after completing a service as interne at one of the general hospitals. Each assistant resident is given living and a salary at the rate of one thousand dollars per year.

The usual visiting staff under such an arrangement is superfluous except as some one is needed to have the general oversight of the work of the residents and to control the general medical policy of the hospital. Where there is a considerable hospital organization, as in the large cities, a chief of staff may be in charge of both the hospital and dispensary, at the same time having control of the teaching, if any is done.

A laryngologist is essential to the visiting staff. Consulting specialists may be added as necessity requires.

All advanced consumptives require constant attention, and the most helpless bed cases a great amount of personal care. This means a relatively large force of nurses, and since the narrowness of the work precludes a general training school for nurses they must be largely selected from among the graduates in nursing. In a few of the larger cities it would seem desirable to try the experiment of establishing a training school for special instruction in tuberculosis, with a short course of not more than

six months. Under average conditions, there should be at least one nurse for every ten patients.

F. *Work for Patients.* This very vital subject has received much attention during the last ten years, and some plan of manual training is followed in many hospitals. As to its value, there can be no question, but its particular form is frequently a matter of no little difficulty and difference of opinion. General graded out-of-door work about the grounds, carpentering, painting, farming, light ward work, as well as knitting, sewing, book-binding, rug-making, basketry, etc., are among the more common of the forms employed. Although in some instances the work done may be made to yield some financial return to the patient, its chief value is in keeping him occupied and interested and his mind from centering on his misfortune. A somewhat promising field is with the convalescent individuals, who may be taught some healthful form of occupation which they can take up after discharge.

G. *Social Service.* To argue for the importance of social service work in a modern hospital is entirely needless. It is as much a necessary part of the hospital function as the medical work itself. The interdependence of medical and social effort is more real in a tuberculosis hospital than in a general hospital. Much of the social service function can be taken over by that department in the tuberculosis dispensary with which the hospital is associated, but unless under the same roof it seems better that the hospital should have its own organization as a genuine and distinct department of the hospital. Funds for this work should not come from private charity but from a part of the regular financial budget, to be appropriated by the city. Two main lines of work are open, namely, the supervision and care of the family while the patient is in the hospital, and the after-care subsequent to discharge. What is accomplished in these two fields determines more than all other factors combined the degree of success or failure attained in the hospital undertaking.

H. *Social and Religious Life.* Means to furnish recreation and amusements for patients are also vital to success. Residence in the hospital must in a majority of cases be voluntary, and in order to attract and hold the patients, the life there should include ample

provision for entertainment. A recreation center in the administration building is necessary where moving pictures, plays, lectures, music, etc., can be furnished. Such facilities may be combined with those for religious services, either as a separate building or rooms in the administration center. Unless religious services are held in the institution a relatively large number of permissions to leave the hospital to attend church must be granted each week, and such absence is very frequently attended by unfortunate results to the patient. It is by no means exceptional to have the patient who has left the hospital to attend church return intoxicated, and in a greater number other excesses induce equally unfavorable results. The most important consideration in the treatment of the tuberculous individual is that he should be under constant supervision in the hospital.

DISCUSSION.

DR. P. C. DEVLIN, Lynn: I believe that these problems which confront our local hospitals are going to loom larger and larger as time goes on. During our present economic straits, it seems to me that our hospitals are certain to be neglected. There are some of them with walls and ceilings cracked and chipped, and sadly in need of a refreshing coat of paint. I believe at this time, if we are to do our full duty by these institutions, we should make some more united efforts to see that these are kept attractive, because they serve in a large measure just the immediate public that is easily in reach of them.

The relatives and friends of the patients come to visit often and in large numbers, and the reputation which the hospital maintains in the community, I have always felt, depended upon the impression it made upon those people. Just as they expected it to be located on some elevation of ground, they also expected it to be light and cheerful and sanitary, as well as that the patients should be well cared for and treated.

Since most of the patients are of the advanced type, I feel when they get the individual care, such as they can easily secure in small institutions, they are getting the best possible treatment.

The day is not far distant when we are going to have some assistance in State inspection, which will not only materially aid in the management of our institutions, but will have a

great moral effect upon our local governments.

DR. R. W. HASTINGS, Brookline: The Brookline tuberculosis ward of fourteen beds is part of the contagious hospital which comes under my supervision. It is not many years ago since our tubercular patients in Brookline were cared for in little old cottages which the community had an idea had been used for smallpox.

It was pretty hard to get patients to go. It is very much easier now that we have a small ward with two separate rooms on each side, the most attractive hospital anywhere. We must have something that is attractive to the people in the community, for that I believe is an important feature of a local tuberculosis hospital.

We have had no difficulty, rather to my surprise, because of the idea of being associated with scarlet fever, diphtheria, or other contagious cases, perhaps because we have had no unfortunate cross infection. Sometime we shall have, I suppose, but we try to avoid all such possibility.

One thing our Board of Health has done recently in relation to tuberculosis work, spurred on by our health officer, Dr. Denny, who has been most active and efficient in board of health work, was to pass a regulation, which I think is a pretty rare one. This says that no person having tuberculosis in a communicable form shall live in a household with a child under sixteen years of age, unless the Board of Health says it is safe for them so to do.

That is going to get the incorrigible, which legislation will not allow us to touch, and it will help in various ways. Whether the Supreme Court will allow it to stand, I do not know, but it is a big step in an effort to segregate patients that ought to be separated from their own families.

Tubercular social service is carried on with us through our dispensary, and has antedated a good deal of our hospital work. The relationship of our hospital with the dispensary we try to keep as close as possible. Patients who go out from us are carefully followed up by the dispensary nurse.

Dr. Hitchcock has pointed out* that the school physicians and the tuberculosis officials are not closely enough allied. The attempt has been made in Brookline to cause to be reported by me as Chief Medical Inspector, and by me to

* See JOURNAL, page 269.

the school physicians of Brookline, every case of tuberculosis which occurs in families with children in the schools. All these children are checked up individually, and the school physician is notified that so-and-so in a tubercular family goes to school. This fact is entered on the health card, and frequently the child is looked over by the doctor to see if there is any suspicion of tuberculosis about him.

IV.

THE MASSACHUSETTS TUBERCULOSIS DISPENSARIES.

BY JOHN S. HITCHCOCK, M.D., NORTHAMPTON, MASS.

IN 1916 I had the honor to publish an article on the then newly established Massachusetts Tuberculosis Dispensaries, in which I tried to outline the general plans for defense against tuberculosis, and the part which the dispensary was expected to assume. Today I am able to present the concrete facts concerning the work of these dispensaries during the year 1917.

First, let me again briefly outline the whole plan and the part of the dispensary in it.

In considering the promising points of attack, the disease was divided into three groups: first, the *open* case—a definite danger to the public; second, the *incipient* case—a potential, but not in its present state, a definite danger to the public; and third, the *exposed and probably infected but not yet diseased* person—again not an immediate danger to the public. It was stated that a sharp division could not be made between these groups. One ran into another in such an insidious and complicated manner that general dividing lines had to be arbitrarily drawn and, in individual instances, the line was badly blurred.

As institutional weapons against these groups (again speaking of the majority rather than of the individual case), for the open case, the active menace to the community, we had the hospital; for the incipient case, the cases requiring careful education in the ordering of their daily lives, we had the sanatorium. For the third group, the exposed but not yet demonstrably diseased case, we planned the dispensary as our prophylactic.

All this sounded very attractive and clear-cut and complete as propaganda. We of course, knew that accurate segregation of a whole group into its particular type of institu-

tion was physically impossible, and we knew from actual experience that it might be not only impracticable but unwise in individual cases. In hospitals many an incipient case, and in sanatoria many an open case, has gone on to speedy arrest and presumptive cure. The clinician has developed good judgment along the line of selecting the proper institution for the individual case. In the dispensary problem it was recognized that many individual cases of both of the diseased groups have been successfully treated at home under clinic or dispensary supervision, and that dispensary activities could not be confined to those well persons, chiefly children, whose exposure to disease and consequent need of supervision was the real moving impulse that resulted in establishing the dispensaries. Consequently we laid great stress on the importance of the nurse. We felt that she would be eighty per cent. of the dispensary; that its success or failure would depend very largely upon her character, ability and personality. We loaded her with wide reaching responsibilities, demanded that she be almost superhuman in her knowledge of local conditions and individuals, and in her wisdom and tact in reaching and guiding sensitive, sick persons and sensitive, sick families.

The dispensaries were established and put in operation in 1915. Statistics for 1917 should show reasonably accurately what the result has been.

FOR 1917.

Dispensaries	53	
Physicians	102	
Nurses, full time	64	
Nurses, part time	20	
Social workers	6	
		192
Under supervision	21,689	(409 each)
Examinations	8,803	(166 each)
Found tuberculous, and suspicious	4,830	(55%)
Found not tuberculous..	3,973	(45%)

The chief functions of the dispensary as planned were: (1) to supervise the third class of patients, the exposed but not yet diseased, and (2) to be a central clearing house for information as to the existence and condition of diseased persons and as to the wisest measures to apply to each case for its isolation, relief or cure.

As to supervision—21,689 persons under supervision means an average of 409 to each dispensary—it means that an average of over 200 persons are under the supervision of each one of the nurses. This is far too many. Those of

you who are familiar with tuberculosis work will realize that these nurses and workers are not spending much daytime at the movies. We delegated 80% of the value of the dispensary to the nurse; in view of that estimate it seems rather curious that only 44% of the personnel of the dispensary workers is made up of nurses. And as a matter of fact we feel that we need that other 36%, and need it badly.

As to information on file—during 1917 there were 8365 new cases of pulmonary tuberculosis reported from the State. We have histories of approximately 50% of these new cases. We hope that our added nursing staff will secure 100% of these histories from now on. During this same year, 1917, we had 8803 persons examined in the dispensaries. We have there the exact records of physical and family histories of these, the 4830 tuberculous or suspicious patients, and of the 3973 who proved to be non-tubercular. Add to this the less complete but still valuable data recorded concerning the 21,689 persons under supervision, and you will agree that we have a large volume of most valuable information at our command. This information was not available before the dispensaries were established, and could be secured only by this or some similar concerted and centralized plan.

In trying to control a disease as prolonged and insidious as tuberculosis, histories of illnesses and contacts that would seem ancient history if applied to most of our other contact diseases, are of prime value. We are getting them in our dispensaries, and they are in immediately available form.

An interesting feature of the data concerning dispensary work is the fact that while in 1916 there were 2590 private cases supervised by dispensary nurses, in 1917 there were 2439, a decrease of 151. The number of cases thus visited is large and indicates a good degree of co-operation and confidence on the part of the practising physician, but the decrease at a period when our tuberculosis rate is not declining needs an explanation. It makes one look for a reason. Are physicians referring their cases to the dispensary rather than keep them as private cases, or are they overlooking an aid in their work, or have they tried it and found it unsatisfactory? If the first is the case, the dispensary is doing exactly what we hoped it would do; if the second, the dispensary forces

should remind physicians of the facilities for help at their command; if the third, we should question the methods and personnel of the dispensaries.

We have learned that a very early diagnosis—practically a pre-pulmonary one—can be established in children, and that proper institutional or home treatment is exceedingly promising with them.

The school physicians and nurses do not seem to be giving, as yet, full coöperation. How much jealousy there may be on both sides, or how much indifference is not clear. At any rate, more combined effort certainly could be made in this part of the field, which seems of such tremendous importance.

Real coöperation between the dispensary and the school should show brilliant results.

These dispensaries were established in 1915. If two years of existence can show so large a volume of work, we are interested in what five will show. We will assuredly need a larger force effectively to take care of the large number of cases that are coming under dispensary supervision. We have made an excellent start—it remains to keep in the running. The demonstrations of the usefulness of carefully supervised home treatment are too definite to be overlooked, and extensions in this line will call for more workers. Can anyone doubt their value or that we can and shall have them?

DISCUSSION.

DR. E. O. ORIS, Boston: The main objects of the tuberculosis dispensary are: first, to make a diagnosis at the first visit if it can be made, or if not to keep the patient under observation until a definite diagnosis can be made; second, to dispose properly of the positive active cases, so that they may come under treatment and to keep them under control until they are thus placed; and third, to examine all contacts.

The method of accomplishing these essential things may differ somewhat in different localities and under different conditions, but the instrumentalities employed must be practically the same. In the first place, there must be a competent physician or staff, who ought to receive some compensation; better and more attentive work is rendered, as a rule, where there is some remuneration involved.

In the second place, there should be a visiting nurse or nurses, who also possess some

knowledge of medical social service, or else a social worker who has some knowledge of tuberculosis. In my opinion the experienced social worker, with a knowledge of the economic and social conditions met with in dispensary patients, does quite as good, if not better, work than the purely visiting nurse, but much depends upon the personality of one or the other.

I do not believe that it is the province of the tuberculosis dispensary to treat patients, save

losis clinics, for example, of the Massachusetts General Hospital, or the Boston Dispensary, where patients come from almost anywhere.

In every tuberculosis dispensary, however, there must be follow-up work if the best results are to be obtained, and this fact is now recognized in all medical out-patient work.

The follow-up method in vogue at the Boston Dispensary, with which I am the most familiar, is a part of the general social service

BOSTON DISPENSARY.

Medical Follow-up	Age	S.M.W.D.	Date
Name	Age	S.M.W.D.	B.D. No.
Address		Worker	
Employment			
Make up of household			
.....			
Date of last visit		Case now active in S.S.D. {	No
Diagnosis			Yes
.....			
Reasons why call necessary (symptoms, tests advised, unsuccessful letters, etc.)			
.....			
.....			
.....			
.....			
.....			
.....			
.....			
.....			

(Back of Card.)

Report made by	Date of visit
Patient not located	Why?
Relation of person interviewed to patient	
Date patient will return	
Reason patient has not returned	
.....	
Present physical condition (source of information)	
.....	
Description of home conditions	
.....	
Action taken by follow-up worker	
.....	
Suggestions as to further action needed	
.....	
.....	
.....	

in exceptional cases, but rather to make the diagnosis and arrange for the treatment elsewhere.

As I have said, the methods of obtaining the same results in a tuberculosis dispensary will necessarily differ in different localities and under different conditions. A dispensary which confines its work to its own town or city has, perhaps, a simpler problem than one which serves a larger community, as in the tubercu-

system, and it is no different in the case of the tuberculosis department from that in other clinics, except as the disease requires a different application of the same principle.

Follow-up work is self-explanatory,—it is to get the patient to come back to the dispensary as long and until his case has been definitely diagnosed and he has been placed under proper treatment and until he passes out of the hands of the dispensary into other competent ones.

Often this follow-up work involves also care and provision for his family while he is away regaining his health.

When the patient first presents himself to the clinic, besides the usual history, we have what is called the "visible file," which is a small card marked off in squares for each month and each day of the month. Upon this card the date is indicated, when he is to return, if his return is desired. On the day indicated this "visible file," together with the history and previous examination of the patient, is sent to the clinic, and if he does not return, the follow-up work automatically begins first by a letter. The following are samples of letters used:

"The doctor wants you to return to the clinic on ——. If you are well or for any other reason you do not plan to return, please send us a letter. We wish to know how you are. This is sent to you for the sake of your own health."

shows you have trouble that needs to be treated, and at the last visit the doctor found that you needed treatment at another hospital."

If there is no response to the letter a home visit is made by the social worker, who is given various data regarding the patient with the reason why the call is necessary, and on the reverse side of the card she writes her report, what action she has taken, and whatever suggestions she has to make.

The value of this follow-up work is illustrated by the case of a patient under observation for tuberculosis, upon whom the Wassermann test was positive. He did not return to learn this, but the "follow-up" brought him back for proper treatment.

Positive cases of tuberculosis, if from out of town, are referred to the board of health of that town and they are kept under observation until we know that the responsibility for them is assumed by that town. If it is desired that

Ad.....															No.....														
191	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15														
Jan.																													Jan.
Feb.																													Feb.
Mar.																													Mar.
Apr.																													Apr.
May																													May
June																													June
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31													
Jan.																													Jan.
Feb.																													Feb.
Mar.																													Mar.
Apr.																													Apr.
May																													May
June																													June

Or—

"The doctor wants you to return to the clinic on ——. At the time of your last visit the doctor felt your trouble was not cured. For your own health you ought to have more treatment. Kindly answer by coming. If not, write why you are not coming back. The doctor would like to have you keep up your treatment. The doctor is really accomplishing something for you."

Or if we find suspected lesions, or if it is necessary to have a Wassermann test made, a sputum examination, an x-ray or a tuberculin test, we send him a letter like this:

"The last time you were here the doctor wished you to have a certain test made. This is to find out whether you had trouble which needed to be treated. The doctor wants you to return so the test can be made."

Or if the test was made:

"The doctor wants you to return to the clinic next week. The test made last time

the dispensary see that provision is made for the patient, application is made for entrance into the State sanatorium, if the case is a suitable one. In Boston all cases are referred to the Out-Patient Department of the Consumptives' Hospital, where the follow-up work is assumed by the nurses of that institution.

In brief, the object of the follow-up work in tuberculosis is to keep the tuberculous patient under observation until he is properly provided for in a hospital or sanatorium, and again to follow him up when he returns as an arrested case to see that he comes to the dispensary from time to time for an examination, in order that he may keep well. And further to hold all "suspects" until a definite diagnosis is made one way or the other.

DR. S. HOBERMAN, Malden: It seems to me that Dr. Hitchcock has set forth the

dispensary problem correctly, particularly as to the necessity for coöperation between the school physicians and the dispensary. I had in mind that it would be of assistance if the teachers could help in taking afternoon temperatures. I think it would help the physicians in the dispensary. Of course, I appreciate the delicate situation where a family physician is involved, but uppermost in our mind must be the benefit of the community.

Dr. Locke's suggestion relative to prophylaxis I think is a good one, and I would add to this the importance of the solution of the incorrigible cases. In Malden the incorrigibles command our utmost attention.

I think Dr. Hitchcock stated that there is a notable decrease in attendance of patients at dispensaries. I am one of the physicians at the Malden Dispensary, and I do not find that to be so, but I think this is perhaps due to our splendid nurse. We want a nurse to have three qualities,—character, ability and personality,—and not to overtax her with an excessive number of cases to follow up at a time.

Another item relative to the Malden Dispensary is that we have adopted the name of "Public Health Dispensary." I think that means a good deal. The fact that there is no decrease in the number of cases who have attended during the past year would substantiate this fact. In our name we eliminate the stigma attached to the word "tuberculosis" in the mind of the public.

Original Articles.

WOUND SHOCK AND THE VASOMOTOR CENTER.

By W. T. PORTER, M.D., BOSTON,
AND
E. EMERSON, PROVIDENCE.

[From the Laboratory of Comparative Physiology in the Harvard Medical School.]

FORMER communications¹ from this Laboratory established the fact that fat embolism is a frequent cause of wound shock. They made no effort to explain the mechanism by which

fat embolism produces wound shock. The present communication offers proof that shock results when the capillaries in the bulbar vasomotor region are plugged by fat globules.

Following is a typical experiment upon a rabbit; similar observations have been made on cats and dogs.

July 29, 1918, a rabbit weighing 2 kilos was lightly curarized and artificial respiration was begun. The carotid diastolic blood pressure was 160 mm. Hg. The subelavian artery was ligated at its origin from the aorta and also at a point beyond the origin of the vertebral artery. The internal mammary branch was ligated, but two muscle branches were left open. By means of a cannula in the subelavian, one-fifth cubic centimeter of neutral olive oil was injected. Part entered the muscle branches and part the vertebral. In a few moments, the blood pressure began to fall. In fifteen minutes, the diastolic pressure had fallen to 40 mm.

The outstanding fact discovered in this and many similar experiments is that a minute quantity of fat will produce the characteristic fall in blood pressure, and the concomitant symptoms of wound shock, whenever the blood supply to the vasomotor region is interrupted by the plugging of its capillaries. In the experiment cited, the quantity of oil injected was one-tenth cubic centimeter per kilo. There is every reason to believe that less than this small quantity can be used with success. Moreover, a part of this 0.1 cc. per kilo was lost in the unligated branches of the subelavian artery; another part was lost in filling the subelavian and vertebral arteries between the point of injection and the bulbar cells; finally, some oil necessarily found its way into the capillaries supplying portions of the bulb other than the vasomotor region, for the vasomotor cells occupy but a very small fraction of the bulb. It follows that the amount of oil actually used to produce shock in this experiment was exceedingly small.

It must at once be recognized that the quantity of oil with which we have produced experimental shock by embolism of the vasomotor center is far less than the amount which has repeatedly been found in the blood vessels of human beings after fracture of the femur.

A microscopic examination of sections through the vasomotor region, stained with Sharlach R, abundantly supports the conclu-

¹BOSTON MEDICAL AND SURGICAL JOURNAL, 1916, Vol. clxxv, pp. 854-858; 1917, Vol. clxxvi, p. 248; *Ibid.*, p. 699; 1917, Vol. clxxvii, pp. 326-328; 1918, Vol. clxxviii, pp. 657-660. Comptes rendus de l'Académie des Sciences, Paris, Oct. 30, 1916, t. 163, p. 492; *Ibid.*, July 23, 1917, t. 165, p. 164. Proceedings of The Institute of Medicine of Chicago, 1918, Vol. ii, pp. 24-29.

sion that minute quantities of fat may produce shock. When the amount of oil injected is relatively large (for example, in the cat, 0.4 cc. per kilo) fat is readily found in many sections. When the fat injected is as little as 0.1 cc. per kilo of body weight, the stopped capillaries are hard to find. Yet the physiological evidence is beyond question. The injected fat has gone only to the brain; all parts of the brain can be cut away without lowering the blood pressure, if only the vasomotor center be respected; hence, the vasomotor region in our present experiments must have been injured.

The demonstration of fat embolism of the vasomotor center as a cause of wound shock is as follows: (1) Excluding abdominal wounds, in which a hydrostatic fall in blood pressure may follow an invariable local injury to the largest vascular area in the body, the most frequent causes of shock in wounded soldiers are shell fracture of the femur and multiple wounds of the subcutaneous fat. (2). In fracture of the femur and in multiple wounds of the subcutaneous fat, considerable numbers of fat globules are found in the blood. (3) A quantity of fat much smaller than that known to circulate in the blood in the injuries most often followed by shock will produce shock when the nutrient vessels of the vasomotor region are stopped.

CONCLUSION.

Fat embolism of the vasomotor center is a frequent cause of wound shock.

Book Reviews.

The Technique of Psychoanalysis. By SMITH ELY JELLIFFE, M.D. New York and Washington: Nervous and Mental Disease Publishing Co. (Monograph Series No. 26). 1918.

Of all the recent fundamental advances in neurology and psychiatry there is probably no subject which has been so completely misunderstood, antagonized, and even purposely distorted as that of psychoanalysis. This applies not only to its theoretical, but likewise to its practical and technical aspects. Psychoanalysis is an art as well as a science and it is peculiarly fitting that this work by Jelliffe on the technic of psychoanalysis should appear at a time when so much can be hoped from psychoanalytic con-

ceptions applied to the treatment of the war neuroses. For it is in the war neuroses, which are grouped under the generic name of shell shock, that we find such perfect and complete examples of psychoanalytic mechanisms in the various psychogenetic factors which precipitate these conditions. So clearly is this seen that the clinical symptoms of shell shock, both from their conscious and unconscious aspects, might have been described by Freud himself.

As in all highly specialized branches of medicine, the practice of psychoanalysis presupposes a minute acquaintance with its underlying theories. No one is qualified to practise it without a fundamental training in psychopathology any more than one is qualified to perform a surgical operation without a knowledge of anatomy. The technic of psychoanalysis is not cut and dried, it is becoming more and more perfected with the advancement of the science, while a recent statistical study, giving the results of psychoanalytic treatment in a large series of cases has shown that it is by far the best psychotherapeutic method known to the medical profession.

Jelliffe's book is an admirable one for the beginner in psychoanalysis, and it can be supplemented by the descriptive bibliography given in the course of one of the chapters. It is noted with interest that he devotes a large space to an aspect of psychoanalysis in which there are so many pitfalls, namely, a description of what patients and what clinical conditions *not* to analyze rather than what patients to analyze. While the field of clinical psychoanalysis of the neuroses is wide, yet there are certain conditions in which psychoanalysis is ineffective either from the nature of the neurosis or from the resistance which may be set up. For instance, while early or mild cases of dementia precox are distinctly amenable to psychoanalytic therapy, the severe types do not yield to psychoanalysis because of the inaccessibility of the mind of the patient.

The Oedipus hypothesis is very well described, likewise the most important of all psychoanalytic therapy, namely, the handling of the transferences and the resistances, to which two chapters are devoted. Recent psychoanalytic investigation has shown that the analytic treatment of the neuroses consists less in unearthing repressed material than in the handling of the patient's emotional likes and dislikes known technically as transference and resistance. Certainly psychoanalysis does *not* consist, as most of its critics would make us believe, in the discussion of sexually pornographic material, for in a well-conducted psychoanalysis there is far less reference to the sexual than in the usual medical history. It is clearly and pertinently pointed out also, that there are numerous nervously sick individuals who do not need a complex analysis because they have not developed a complex neurosis. It is in these individuals that the neuro-

sis can be adjusted by a few talks along psychoanalytic lines.

It is to be hoped that this book with its well-balanced attitude and its insistence on the clinical applications of psychoanalysis for the nervously ill rather than on the so-called inadequate rest cure and the administration of sedatives, will do much toward placing psychoanalysis in the right light before the medical profession.

Publications of the Red Cross Institute for Crippled and Disabled Men. Edited by DOUGLAS C. McMURTRIE.

The Red Cross Institute for Crippled and Disabled Men has issued Numbers 12, 13, and 14 of Series 1, dealing with war cripples in Italy, Germany, and France.

"*Provision for War Cripples in Italy*" describes the organization, legal measures, medical treatment and artificial limbs, and methods of reëducation adopted in Italy. This work was started by private individuals, but efforts were soon coördinated and brought under governmental control. The Milan school, the largest and most scientific, became the model for succeeding institutions. A National Federation and a National Board supervised the work of local committees and offered assistance in medical treatment, material relief, reëducation, placement, and the claiming of pensions. Legal measures provide that crippled soldiers are to be sent, after their first surgical treatment, to military centers for physical and orthopedic treatment. Here the cripple must remain for fifteen days. He is furnished with temporary artificial limbs at the expense of the government and given an opportunity for reëducational training. If he accepts, he remains under military discipline and stays at school for a maximum period of six months, when he is reinstated in some form of work.

The problem of artificial limbs and functional reëducation is only beginning to be dealt with in Italy. No standard type of limb has as yet been decided upon. Little has been done to help the work of cripples, but a commission has been appointed and is studying the matter. In the case of reëducation, Italy faces a problem greater than that of other countries, for a large proportion of her men are peasants, with no background of experience in trade and very little education. The character of the Italian school is formal and institutional. Each school is under the direction of a voluntary local committee, of which there are about twenty-six. There is an elementary course, and a business course, including Italian, arithmetic, writing, geography, French, bookkeeping and stenography. There is also a course for postal and telegraph employees. The importance of the study of agriculture is beginning to be considered. Pensions have not been reduced with increased earning capacity, and every ef-

fort is made to place cripples in permanent and congenial positions.

"*Provision for War Cripples in Germany*," Series 1, Number 13, shows that there are two outstanding features about the German system of care for war cripples. In the first place, there is no real central authority; the schools are of varying types and unevenly distributed. The second feature is the volunteer character of the work; reëducation is in private hands, and is not even supervised by the Imperial Government. When the war broke out, Germany had all the elements with which to begin immediate work, for she already had many cripple homes, workshops and hospitals, many of them under private auspices. Medical treatment and provision of artificial limbs and functional reëducation are under the control of the Imperial Government, while vocational reëducation and vocational advice and placement are cared for by private and state agencies. Orthopedic treatment proceeds upon the principle that practically every cripple can be made fit to work again. The time of treatment is from two to six months. More and more emphasis is being placed on physical exercise as a means of strengthening the stump and the remaining limbs. All artificial limbs are furnished and kept in repair by the government. The principle has been accepted that the prosthesis should reproduce, not the limb, but the lost function.

Reëducation in Germany is carried on at the same time as medical treatment. Some of the hospitals are equipped with shops, and training is given under the hospital roof by civilian instructors. This indoor plan is followed less than the outdoor plan, where the instruction takes place in the local trade schools. Every town has at least one trade school, so that there are excellent facilities for this work. Here instruction is not given under military discipline. There are special schools for one-armed men. Every effort is being made through the agricultural schools to return as many as possible to agricultural occupations. The teaching in all schools is very largely voluntary. The response of the men to the appeal to overcome their handicaps for the sake of the Fatherland is a willing one. Employers coöperate by manifesting a benevolent policy.

Vocational advice is a civilian function. A man is generally urged to go back to his old trade if possible; if not, to an allied one. Cripples are visited in the hospitals by members of local committees who encourage the men and find suitable employment. There are five agencies to which a cripple may turn: the care committee, the public employment bureau, government service, employers' and workmen's associations, and miscellaneous charitable and private agencies. There are also special employments due to the war and under the war department.

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PREPAREDNESS IN TUBERCULOSIS.

FROM certain statements that have been published in the papers, the public in this State might easily be led to believe that Massachusetts as a State is not prepared to do two important things. These are: first, to take care of any possible increase in tuberculosis in its civilian population, which will undoubtedly occur; and, second, to take care of tuberculous soldiers should the army authorities change their present plan of caring for these soldiers in the army sanatoria.

There is very little doubt, in the minds of those best qualified to judge, that there will be a slight increase in the incidence of tuberculosis in the civilian population for causes so evident as to need no comment.

As far as tuberculosis in the Army is concerned, however, Massachusetts as a State is in no way concerned. The Army at present has taken the very definite stand that tuberculosis among its soldiers is its own problem, and

that it intends to care for such tuberculous soldiers in its own institutions. The army sanatorium at Fort Bayard, New Mexico, has been in existence for a long time. Newer army sanatoria have been established or are now in the process of construction at Otisville, New York, Asheville, North Carolina, Connecticut, and elsewhere. Should, however, the army plan be changed, and should Massachusetts be asked to care for tuberculous soldiers, and should there be a marked increase of tuberculosis in the civilian population, the following facts will show how well prepared is this State to cope with this new problem.

The Board of Trustees of Hospitals for Consumptives, which Board has control of the four State sanatoria, at Rutland, North Reading, Lakeville, and Westfield, comprising at present about one thousand beds, has given this matter careful consideration. At the Westfield Sanatorium, there is a large open-air school building which could easily and quickly be turned over into a dormitory to house at least one hundred extra patients,—soldiers or civilians. In addition to this, there is a large building now not in use at this institution which could be, in a comparatively short while, made over to accommodate one or two hundred more. At the Rutland and at the Lakeville State Sanatoria, through a wise provision of the present Legislature, a new and enlarged kitchen building was made possible at Rutland and a new power plant at Lakeville. The construction of these is now under way. With this additional help of the kitchen and power plant, by means of simple shacks, tents, etc., each of these institutions could quickly and easily be prepared to accommodate one hundred or more patients each, in addition to its present population.

The Barnstable County Sanatorium, appropriation for which was made in 1915, is now in operation. Although at the present time there are only twenty-six beds, the administration, power, and kitchen facilities are such as to make it possible for this institution to accommodate one hundred or more patients if necessary. In addition to the Barnstable County Sanatorium, the Legislature of 1917 passed what is known as the County Tuberculosis Hospital Act, authorizing the construction of certain other county tuberculosis hospitals. Up to the present time, the Capital Issues Committee of Washington has held up the construction of these institutions. Recently, however, the

Norfolk, Plymouth, and Bristol Counties have been permitted to go ahead with the construction of their institutions, and the building of these hospitals is now under way. They will provide for three or four hundred beds. Should the Capital Issues Committee permit of it, the construction of the Middlesex and Essex County Hospitals will be rushed, providing three hundred and fifty beds. The Lowell Tuberculosis Hospital is about to be opened.

In addition to this, the Trustees of Hospitals for Consumptives, foreseeing a possible need, obtained plans from practically every municipal tuberculosis hospital in this State whereby the number of beds of such local institutions could quickly and easily be increased. Data in regard to this are on file at the office of the Board.

Thus it is evident that the State of Massachusetts is well prepared to handle any increase in tuberculosis in its population, civil or military, which may arise. It is right and proper that both the lay and medical public should be acquainted with these facts, and should know that Massachusetts, which has long been a leader in its anti-tuberculosis campaign, is still maintaining its high standard.

VITAMINE AND NUTRITION.

IN the August issue of *The Scientific Monthly*, there is an interesting article describing some research work with vitamins, by Dr. H. Steenbock. Vitamins may be characterized as water-soluble or fat-soluble. Chemically, both vitamins are entirely unknown; yet, without either kind in the diet, animal life, at least that high in the genetic scale, is impossible.

Observations of symptoms indicative of the lack of the water-soluble vitamin in the dietary were made on man himself. In the Far East, there has been prevalent a disease known as beriberi, characterized by a loss in weight, with muscular atrophy, contracture or paralysis, which may either run a rapid course or take on a chronic form. Experiments were made by a Dutch investigator, Eykman, who observed that birds fed exclusively on white rice developed symptoms resembling those of human beriberi. Experiments have shown, also, that a nutritional polyneuritis can be induced in the rat by a lack of the water-soluble vitamin in the ration.

Efficiency of a ration in the fat-soluble vitamin is not manifested so specifically. A young rat will fail to grow and a mature rat will fail to maintain itself; in addition, these rats are predisposed to a purulent conjunctivitis which usually leads to permanent blindness. Often rations deficient in the fat-soluble vitamin have induced the formation and disposition of calculi along the urinary tract. It is possible that these two conditions are related.

Man cannot restrict himself to grains as his source of supply of this dietary essential. Leafy materials and some roots contain this vitamin in large amounts. In the present emergency in the economic food situation, all students of nutrition should seek to point the way for rational modifications in the selection of nutriment. When the food consumption is large there is little cause for concern, but when it is limited in quantity and variety it is well to realize that any one of the factors,—vitamins, protein, salts, or energy,—may limit a man's capacity for work. Vitamins are indispensable in the diet. There is cause to look forward with considerable anticipation to the economic results which are bound to come with a fuller knowledge of what constitutes the valuable dietetic properties of many food materials individually and in various combinations.

THE NATURE AND CAUSES OF SHOCK.

READERS of the JOURNAL have followed with interested attention the evolution of Dr. Porter's classic studies in shock. In successive brief papers, models of scientific accuracy and literary style, he has reported in its columns his researches, on European battlefields and in the physiological laboratory, into this important clinical problem. The sixth of this series appears in the present issue. It demonstrates that fat embolism of the vasomotor centre is a frequent cause of wound shock. Only those acquainted with Dr. Porter's personality can fully appreciate its inspiration; but all can realize the value of his work to experimental science and to practical medicine.

NEED FOR PHYSICIANS IN THE ARMY.

THE determination of the War Department to raise an Army of at least five million men is now publicly announced from Washington. This means that approximately 50,000 doctors

are imperatively needed. At present about 25,000 have been recommended for commissions. Massachusetts must do still more than she has done in the past.

MASS. STATE COM. NAT. DEFENSE, MED. SECT.

MEDICAL NOTES.

CHOLERA GERMS IN DRINKING WATER.—The *Social Democraten* has a dispatch describing the cholera epidemic in Petrograd. It says that though the water of the Neva is filled with bacilli it is used for drinking. On July 5, there were five cases and 44 on July 8. The daily death rate is now said to be 25.

Men and animals fall every day in the streets, weakened by lack of food. There is no organization, no means of transportation, and patients often must wait 12 hours for hospital carriages. Most of the patients are women, and many from the upper classes are suffering most from hunger.

PUBLIC HEALTH REPORT.—The United States Public Health Report for July 26, 1918, contains an article by T. H. D. Griffiths, describing a portable privy for use in field service. It can be erected and taken down easily and quickly; it can be rolled into a compact bundle, and the cost is moderate. The materials necessary for constructing these privies and directions for erecting them and taking them down are given. The report contains, also, statistics concerning conditions among troops in the United States, and summaries of diseases prevalent in the different States and foreign countries.

CHOLERA UNCHECKED IN PETROGRAD.—There are more than 20,000 cases of cholera in Petrograd, according to the *Fremdenblatt* of Hamburg, which reports that up to August 3, 1100 deaths had occurred. The authorities are helpless and the disease is spreading unchecked.

HEALTH DEPARTMENT OF NEW JERSEY.—The report for 1917 of the Department of Health of New Jersey contains detailed information regarding the health conditions of that State. There have been 44,186 deaths and 70,211 births registered. Special surveys have been made of the county hospitals for the care of the tuberculous; nine counties in the State have already erected hospitals. A tuberculosis exhibit was conducted by the Bureau of Education and Publicity. The Bureau of Local

Health Administration has been engaged in new forms of work; the handling of morbidity records, and the enforcement of sanitary regulations in the special sanitary district created in the territory surrounding Camp Dix. In regard to communicable diseases, epidemiological investigations have been made in forty-two outbreaks of communicable diseases, twenty-six of which were typhoid fever. The report contains, also, the records of the Bureau of Food and Drugs, the Division of Milk Control, the Bureau of Engineering, and the State Laboratory of Hygiene.

THE RELATION OF RAILROADS IN THE SOUTH TO MALARIA.—In the United States Public Health Report for August 2, 1918, there is an interesting article concerning the relation of the railroads in the South to the problem of malaria and its control. One of the most significant features of this relation is the heavy economic burden resulting from diminished earnings, impaired efficiency, loss of time, and consequent handicaps upon industries and communities. Railroad constructions are frequently responsible for favoring the development of *Anopheles* mosquitoes, and often labor gangs, badly infected, are moved from place to place and housed in unscreened cars, permitting the unrestricted access of mosquitoes.

There are several steps which railroads can take in dealing with the malarial problem. The engineering department should consult with the sanitary or medical department before construction is begun. The medical and sanitary departments, on their parts, should encourage intensive mosquito-control campaigns conducted in communities through which railroads pass. They should give thorough treatment to actual cases of malaria among employees. Systematic educational activities should be engaged in by means of literature, lectures, and, if possible, by actual demonstrations. Once the elemental facts of the nature, cause, and transmission of malaria are understood by a sufficiently large proportion of the working force, an immediate return in diminished sickness, increased efficiency, and greater satisfaction among the workers may be confidentially expected.

WAR NOTES.

COMMISSIONS IN THE MEDICAL RESERVE CORPS.—The following appointments in the Medical Reserve Corps have been announced:

Captain. G. A. Peirce, Tewksbury.

First Lieutenants. H. L. Quimby, Gloucester; A. E. Mills, Somerville; E. R. Leib, Worcester.

LEXINGTON DOCTOR COMMISSIONED.—Dr. Winsor M. Tyler of Lexington, who was recently commissioned a captain in the Medical Reserve Corps, has been stationed at Fort Adams, Newport, R. I. He is the second Lexington physician to enter this branch of service. The other is Dr. James J. Walsh, who is now in France.

DORCHESTER DOCTOR IN NAVAL SERVICE.—Dr. Frederick M. Sears of Dorchester has been commissioned second lieutenant in the Navy and assigned to the naval hospital at Newport, R. I. as assistant surgeon. He has served as chairman of the health board of the United Improvement Society.

239 WOUNDED ARE BROUGHT TO THE UNITED STATES.—Two hundred and thirty-nine sick and wounded soldiers from the American Expeditionary forces were brought to the United States during the week ended July 26 and sent to army hospitals for physical rehabilitation.

FRANCE GIVEN \$100,000 FOR FOUR HOSPITALS.—Half a million francs have been appropriated by the American Red Cross to complete the installation of four tuberculosis hospitals. One of these is for use by the National Railway Union, comprising 400,000 members, and another is for Serbian tubercular cases.

BOSTON DOCTORS PROMOTED.—Several Boston doctors have been promoted recently. Among those advanced to the rank of Colonel are: Lieutenant Robert Patterson, Dr. John Miller Finney, and William Sidney Thayer.

Lieutenant Patterson went abroad as executive head of the Harvard Unit, Base Hospital 15. He has been detached from this hospital and sent to Italy.

Dr. Finney, who was head of the clinical surgery department of Johns Hopkins Medical School, is a graduate of Princeton College and Harvard Medical School. He served as a surgical house officer at the Massachusetts General Hospital in 1890.

Dr. Thayer, who was professor of clinical medicine at Johns Hopkins Medical School, was

born in Milton, Massachusetts, and received his degree from the Harvard Medical School in 1889. He served as a medical house officer at the Massachusetts General Hospital in his senior year at the Medical School. He then went to Johns Hopkins, where he was rapidly advanced.

The following are promoted to the rank of lieutenant-colonel: Frederic A. Washburn, Harvey Cushing, Roger I. Lee, Joel E. Goldthwait, Fred Towsley Murphy, Joseph A. Blake and Howard Lilienthal.

Dr. Washburn, promoted from major, is one of the best known hospital authorities in the United States. Previous to going abroad he was administrator of the Massachusetts General Hospital. He went overseas as executive head of Base Hospital 6, which was assembled at that hospital.

He was born in New Bedford and was graduated from Amherst College in 1892 and the Harvard Medical School in 1896. He served as surgical house officer at the Massachusetts General Hospital and Children's Hospital. He served as surgeon of the 6th Massachusetts Regiment in the Spanish War, and was in Cuban, Porto Rican, and Philippine campaigns. On his return he was appointed assistant resident physician at the Massachusetts General Hospital, and later he was chosen administrator. He has served as president of the American Hospital Association. Lieutenant-Colonel Washburn is at present detached as head of the unit and is in charge of the supervision of all base hospitals for the Government.

Dr. Fred Towsley Murphy, who has been promoted to the rank of lieutenant-colonel, is surgeon-in-chief of the St. Louis Hospital Unit. He was born in Kansas and was graduated from Yale in 1897. He attended the Harvard Medical School and on graduating in 1901 was appointed a surgical house officer at the Massachusetts General Hospital. On completing his service he was appointed an assistant visiting surgeon to out-patients at that hospital, and later visiting surgeon. In 1911 Dr. Murphy was chosen professor of surgery at Washington University, St. Louis.

FITCHBURG DOCTOR IS APPOINTED CAPTAIN.—

Dr. George A. Griennard of Fitchburg has been appointed captain in the Medical Reserve

Corps and has been ordered into active service at Camp Greenleaf, Fort Oglethorpe, Ga.

WORCESTER DOCTOR IS GIVEN RANK OF MAJOR.—Dr. Frank W. George of Worcester has been advanced to the rank of major. When he enlisted in the Medical Corps last April, he was commissioned a captain, and has since been on duty at an American base hospital in France.

CHICOPEE PHYSICIAN WINS WAR CROSS.—First Lieutenant Max P. Cowett of Chicopee Falls, Massachusetts, formerly an interne and house physician at Bellevue Hospital, New York, has received the *croix de guerre* from the French government in recognition of heroic work in the trenches. He was graduated from Bellevue Medical College in 1915 and entered the national service in May, 1917.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN MASSACHUSETTS.—During the week ending August 10, the number of deaths reported was 201, against 205 last year, with a rate of 13.36, against 13.86 last year. There were 44 deaths under one year of age, against 42 last year.

The number of cases of principal reportable diseases were: diphtheria, 29; scarlet fever, 4; measles, 23; whooping cough, 39; tuberculosis, 56.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 1; whooping cough, 2; tuberculosis, 8.

Total deaths from these diseases were: diphtheria, 1; scarlet fever, 1; whooping cough, 5; typhoid fever, 1; tuberculosis, 19.

Included in the above were the following non-residents: whooping cough, 1; tuberculosis, 2.

HOSPITAL BEQUESTS.—The will of J. S. Bailey, West Roxbury, provides that \$1000 a year be paid to the Boston Nursery for Blind Babies, and after the death of the last beneficiary named in the trust, \$25,000 is to be paid to this institution. Other bequests included gifts to the Children's Hospital on Longwood Avenue, Roxbury, the Home for Aged Couples, Home for Aged Men, and Home for Aged Women.

THE METROPOLITAN WATER AND SEWERAGE BOARD.—The seventeenth annual report of the

Metropolitan Water and Sewerage Board presents a detailed statement of its activities for the year 1917. The construction and maintenance of the water and sewerage works is described. Because of the high price of labor and materials, a large portion of the construction work already authorized has been deferred with the hope of carrying out the projects under more favorable conditions. The water supply has been protected by filtration, constant inspection of watersheds, chemical, microscopic, and bacterial examinations. The quantity of water supplied to the Metropolitan Water District amounted to a daily average of 110,032,000 gallons. The extension of the Deer Island sewerage system has been completed. Detailed statistics relative to the water works, sewers, and pumping stations are included in the report.

Obituary.

SAMUEL JEAN POZZI, M.D.

PROFESSOR POZZI, the distinguished French surgeon and gynaecologist, was fatally shot on June 13th in his consulting-room in Paris by a lunatic patient. The following are extracts from his obituary in the *Lancet*:

"Samuel Jean Pozzi was born at Bergerac (Drodogne) in 1846. He was educated at the lycées of Pau and Bordeaux, becoming a student of medicine in Paris in 1869, where he was an apt pupil of Paul Broca. His early academic successes obtained him the title of agrégé in 1877, and six years later he was appointed surgeon to the Hôpital de Loureine which, after Broca's death, became known by his name. At this time he devoted himself mainly to gynaecology, and in 1901 was elected to the chair in this subject founded by the city of Paris. Being charged by the French Government at different times with scientific missions to Germany, England, Italy, Austria, and the United States, he soon acquired a world-wide reputation. From 1885 to 1894 he acted as secretary-general of the French Congress of Surgery, and in 1895 was elected to the Academy of Medicine. In 1898 he became a senator, and added to his reputation that of an able man of affairs. He became President of the Surgical Society of Paris, of the Cong-

ress of Gynaecology which met at Marseilles in 1898, and he was one of the vice-presidents at the Paris International Congress of Gynaecology in 1900. He was an honorary Fellow of the Legion of Honor.

Professor Pozzi had a well-deserved reputation as a teacher. He held for many years the leading place among French gynaecologists, and did much for that branch of medicine both from its medical and surgical aspects."

Professor Pozzi was a prolific writer.

"After his M.D. thesis on pelvic fistulae, his first published work was on the subject with which his name is still chiefly associated—viz, 'The Value of Hysterectomy in Fibrous Tumour of the Uterus' (Paris, 1875). Other early works dealt with amputation wounds, cerebral localization, and sclerosis of the convolutions in mental disease. His famous textbook on 'Clinical and Operative Gynaecology' first appeared in 1890, was translated by the New Sydenham Society (1892-93), appeared in American form edited by Brooks H. Wells (1892), in German edition with a preface by P. Müller and in Russian (1897) in association with Voff. He was founder and for many years director of the *Revue de Gynécologie et de Chirurgie Abdominale*. He was a keen student of the history of medicine, and to him we owe the reasoned conclusion that the last illness of Princess Henrietta, daughter of King Charles I of England, was due to a ruptured extra-uterine pregnancy in the first or second month.

Professor Pozzi was a great traveller on behalf of official gynaecology. He was present at the annual meeting of the British Medical Association at Sheffield in 1908, introducing there a discussion on uterine displacements. He remained highly receptive of new ideas from whatever quarter, and after a visit to New York in 1909, returned much impressed by the transplantation of organs and tissues accomplished by Dr. Carrel at the Rockefeller Institute. One of his most recent addresses dealt with the hospital of the future, in which he drew on the abundant material collected on his travels. He was firmly impressed with the value of simplicity and adaptability, and recommended the use and construction of buildings which could be demolished without hesitation to be replaced by others of more recent ideas."

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR JULY, 1918.

General Prevalence. The reported cases of communicable diseases for the month of July shows a marked decrease over all previous months of the year, the total number for the month being 6,270, with a case rate per 100,000 of 159.9. The total number of cases reported for June was 9,044, making a decrease for July of 2,774 cases.

This decrease was evident in all forms of communicable diseases with the exception of typhoid fever, which increased from 64 cases in June to 112 in July. This increase is, of course, due to the seasonable agencies which make the infection more easily acquired and communicated. No outbreak of importance occurred during the month.

Diphtheria. The disease was reported in 463 cases, giving the lowest total for any month during the year. The incidence was mainly in the larger cities and towns, and this fact brings forth the query: "Why is diphtheria allowed to exist in such large proportions, with its relatively high mortality rate, when it is one of the few diseases that can be diagnosed early and correctly by the laboratory, and for which specific medication is available." It is hoped that early recognition of the disease, efficient isolation of the patient, and effective quarantine of contacts will bring a more marked decrease in the number of cases of diphtheria.

Measles. The greatest decrease in numbers of cases reported is in this condition. The total measles cases for July was 1,962, as compared with June's 3,664—a decrease of 1,702. It is noted that the spread of measles is now extending from urban to rural communities, conveyed by vacation travelers with unrecognized cases in their numbers, or by visitation between the inhabitants of these places.

Scarlet Fever. Scarlet fever was reported in 200 cases in July as compared with 289 cases in June, a decrease of 89 cases.

Whooping Cough. The prevalence of whooping cough continues to be high, and its incidence is widely scattered throughout the State. The prevention of infection with this condition becomes in a large measure a matter of educating those responsible for the well-being of their children. Authorities in preventive medicine are fully in accord with the United States Public Health Service's suggestion relative to the communicability of whooping cough, which is as follows: "Whooping cough is particularly communicable in the early catarrhal stages before the characteristic whoop makes the clinical diagnosis possible. Communicability probably persists not longer than two weeks after the characteristic whoop, or approximately four weeks after onset of catarrhal symptoms." If children are safeguarded from infection during this four-weeks' period, the morbidity rate for whooping cough can be reduced.

Typhoid Fever. Typhoid fever alone shows an increase for the month. There were 112 cases reported for July as compared with 64 for June. The appended study of all cases of typhoid fever reported from January 1st to August 1st, occurring in the age groups 1 to 11, was made to ascertain what percentage of typhoid was verified by a positive Widal examination. It will be noted that nearly 50 per cent. of these cases either had no blood examination or furnished no information regarding Widal's upon the history sheet.

One cannot help but wonder why the laboratory is not used more freely when positive Widal reactions would facilitate the diagnosis of typhoid fever or aid in the differentiation of simulating conditions.

Tetanus. There were four cases reported during the month, none, however, attributable to the Fourth

of July celebration. One case occurred in an 11-day-old infant; two received puncture wounds; and one was not ascertained.

RARE DISEASES.

Anterior Poliomyelitis was reported from Beverly, 1; Boston, 1; Cambridge, 1; Easthampton, 1; Medford, 1; New Bedford, 3; Newton, 1; and Warren, 1; total, 10.

Anthrax was reported from Brockton, 1; Methuen, 1; and Woburn, 2; total, 4.

Dog Bite requiring anti-rabic treatment was reported from Clinton, 1.

Dysentery was reported from Adams, 1; Boston, 3; Cambridge, 1; Danvers, 1; Fall River, 1; Greenfield, 2; Melrose, 2; Middleboro, 2; New Bedford, 2; Shirley, 7; Somerville, 1; Sutton, 1; and Worcester, 6; total, 30.

Epidemic Cerebro-Spinal Meningitis was reported from Andover, 1; Belmont, 1; Boston, 5; Cambridge, 1; Camp Devens, 1; Chelsea, 2; Fall River, 1; Fitchburg, 1; Greenfield, 1; Haverhill, 1; Lawrence, 2; Milford, 1; Norwood, 1; Somerville, 2; Springfield, 2; Waltham, 1; and Winthrop, 1; total, 25.

Malaria was reported from Blackstone, 3; Boston, 4; Camp Devens, 3; Dedham, 3; Fall River, 2; and Lynn, 1; total, 16.

Pellagra was reported from Everett, 1.

Septic Sore Throat was reported from Beverly, 1; Hudson, 1; and Watertown, 1; total, 3.

Smallpox was reported from Boston, 1.

Tetanus was reported from Great Barrington, 1; Peabody, 1; and Worcester, 2; total, 4.

Trichinosis was reported from Lynn, 1.

Trachoma was reported from Boston, 6; Chelsea, 1; and Gloucester, 1; total, 8.

1918 TYPHOID FEVER (AGES 1 TO 10 YRS., INCL.)

WIPAL	UNDER 1 YR.	1 YR.	2 YRS.	3 YRS.	4 YRS.	5 YRS.	6 YRS.	7 YRS.	8 YRS.	9 YRS.	10 YRS.	TOTAL
Positive .....	..	2	4	2	4	5	4	5	7	9	6	48
Atypical .....	..	..	1	..	..	..	1	..	..	..	..	12
Negative .....	..	..	..	..	..	1	..	..	..	..	1	12
None taken ..	1	1	..	..	1	..	2	3	1	..	..	9
No information ..	..	..	1	..	3	2	4	4	7	3	3	27
Total	1	3	6	2	8	8	11	12	15	12	10	88

PROTECTION OF PROPERTY OF PHYSICIANS IN MILITARY AND NAVAL SERVICE.

In accordance with the request of the Middlesex South District Medical Society, a summary is printed herewith of the "Soldiers' and Sailors' Relief Act," which was passed by Congress and signed by the President, March 8, 1918, entitled "An Act to extend protection to the civil rights of members of the Military and Naval Establishments of the United States engaged in the present war."

The act applies generally to all members of the military or naval forces of the United States, including members of the Nurse Corps.

Before judgment is entered in any suit the court will appoint an attorney to represent the absent defendant.

If the defendant defaults an appearance in court, following a summons, the plaintiff must file an affidavit setting forth facts showing that the defendant is not in military service, and if an affidavit is not filed, no judgment shall be entered without first securing an order of the court directing such entry.

Judgments may be re-opened and actions stayed.

When rent does not exceed the amount of \$50 a month, no eviction may be made except upon leave of court.

Instalment contracts are protected; for instance, the payment of interest on mortgages may be deferred in the discretion of the courts.

"Article III, Sec. 302 (3). No sale under a power of sale or under a judgment entered upon warrant of attorney to confess judgment contained in any such obligation shall be valid if made during the period of military service or within three months thereafter, unless upon an order of sale previously granted by the court and a return thereto made and approved by the court." The obligation referred to means an obligation originating prior to March 8, 1918, and secured by mortgage, trust deed, or other security in the nature of a mortgage upon real or personal property owned by a person in military service at the beginning of the period of military service and still so owned by him.

Protection is afforded against the lapse of life insurance and also against the selling of property for taxes.

Physicians about to enter the service of the Government are advised to procure a copy of the booklet published by the Boston Legal Aid Society entitled "Legal Suggestions for Soldiers and Sailors and Their Dependents." Copies may be obtained without charge by applying to the Boston Legal Aid Society, 39 Court Street, Boston, Mass.

The following table of contents shows the subjects covered by this booklet:

Chapter I. Allowances and allotments. (a) United States Provisions; (b) Massachusetts; (c) Red Cross Aid.

Chapter II. Compensation for Injuries. (a) United States Provisions; (b) Massachusetts Provisions.

Chapter III. Insurance. (a) United States Government Insurance; (b) Private Life Insurance.

Chapter IV. Rent; Debts; Mortgages; Suits in Court; Taxes.

Chapter V. Guardianship and Custody of Children.

Chapter VI. Wills.

Chapter VII. Soldiers' and Sailors' Wills.

Chapter VIII. Estates of Deceased Persons.

Chapter IX. Services by the Legal Aid Society.

WALTER L. BURRAGE, *Secretary*.

VOLUNTEER MEDICAL SERVICE CORPS.

STATEMENT BY DR. FRANKLIN MARTIN, MEMBER OF ADVISORY COMMISSION AND CHAIRMAN OF GENERAL MEDICAL BOARD, COUNCIL OF NATIONAL DEFENSE.

FOREWORD.

THE Volunteer Medical Service Corps was authorized by the Council of National Defense on January 31, 1918. Under this authorization the membership of the Corps consisted of all physicians who, because of over-age, physical disability, dependents and essential home needs, were not eligible for service in the Medical Reserve Corps of the Army or Navy.

Enlarged Scope of the Organization. On August 5 the Council of National Defense authorized a change in the scope of the organization and an increase and amplification of its Central Governing Board. Membership in the Corps as now authorized, makes eligible to the Corps every legally qualified physician, including women physicians, holding the degree of Doctor of Medicine from a legally chartered medical school, without reference to age or physical disability, provided he or she is not al-

ready commissioned in the Government Service. This organization has now the approval of the President, as indicated in the following letter:

(Copy.)

THE WHITE HOUSE, WASHINGTON.

12 August, 1918.

My dear Dr. Martin:

I have received your letter of August 5, laying before me the matured plan for the reorganized Volunteer Medical Service Corps, of which you ask my approval. This work was undertaken by you under the authority of the Council of National Defense; it has had great success in enrolling members of the medical profession throughout the country into a volunteer corps available to supply the needs of the Army, Navy and Public Health Service. In coöperation with the General Medical Board of the Council of National Defense, the strong governing board of the reorganized corps will be able to be of increasing service, and through it the finely trained medical profession of the United States is not only made ready for service in connection with the activities already mentioned, but the important work of the Provost Marshal-General's Office and the Red Cross will be aided and the problems of the health of the civilian communities of the United States assured consideration. I am very happy to give my approval to the plans which you have submitted, both because of the usefulness of the Volunteer Medical Service Corps and also because it gives me an opportunity to express to you, and through you to the medical profession, my deep appreciation of the splendid service which the whole profession has rendered to the Nation with great enthusiasm from the beginning of the present emergency. The health of the Army and the Navy, the health of the country at large, is due to the coöperation which the public authorities have had from the medical profession; the spirit of sacrifice and service has been everywhere present, and the record of the mobilization of the many forces of this great Republic will contain no case of readier response or better service than that which the physicians have rendered.

Cordially and faithfully yours,

(Signed) WOODROW WILSON.

Dr. Franklin Martin,
The Advisory Commission,
Council of National Defense.

EXHIBIT "C".

At a meeting of the Central Governing Board, held on Friday, August 2, it was moved by Dr. Sawyer, seconded by Dr. Martin, that the Central Governing Board shall consist of the present Central Governing Board (excepting Sherk, Bradford, and Brophy) and others as follows:

Surgeon-General William C. Gorgas, U.S.A.
Surgeon-General William C. Braisted, U.S.N.
Surgeon-General Rupert Blue, U.S.P.H.S.
Provost-Marshal General E. H. Crowder.
Dr. Franklin Martin, Chairman of Committee on Medicine and Sanitation, Council of National Defense.
Dr. Edward P. Davis, President Volunteer Medical Service Corps.
Dr. John D. McLean, Vice-President.
Dr. Charles E. Sawyer, Secretary.
Admiral Cary T. Grayson, U.S.N.
Dr. F. F. Simpson.
Dr. Frank Billings.
Dr. H. D. Arnold.
Mr. W. Frank Persons—Red Cross.
Dr. William H. Welch.
Dr. Victor C. Vaughan.
Dr. Robert L. Dickinson, Chief of Staff's Office.
Colonel R. B. Miller, U.S.A., Chief of Personnel Division.

Surgeon R. C. Ramsdell, U.S.N., Chief of Personnel Division.
Colonel James S. Easby-Smith, Executive Officer.
Dr. Joseph Schereschewsky, Assistant Surgeon-General (Personnel).
Dr. C. H. Mayo or W. J. Mayo.
Dr. William Duffield Robinson.
Dr. George David Stewart.
Dr. Duncan Eve, Sr.
Dr. Emma Wheat Gillmore.

GENERAL PLAN.

The Volunteer Medical Service Corps is exactly what its name indicates. It is a gentleman's agreement on the part of the civilian doctors in the United States who have not yet been honored by commissions in the Army and Navy, and a representative board of governors consisting of officials of the Government associated with lay members of the profession, in which the civilian physician agrees to offer his services to the Government if required and asked to do so by the Governing Board.

It is a method of recording all physicians who are not yet in service and classifying them so that their services when required will be utilized in a manner to inflict as little hardship on the individual as possible. It is a method by which every physician not in uniform will be entitled to wear an insignia which will indicate his willingness to serve his Government.

As more than sixty per cent. of the physicians of the country will be utilized in caring for the industries at home and the health of the home people, this large percentage of necessity will be expected to maintain their home status and continue their ordinary professional work.

1. Object of Corps.

1. Placing on record all medical men in the United States.
2. Aiding Army, Navy, and Public Health Service in supplying war needs.
3. Providing the best civilian service possible.
4. Giving recognition to all who record themselves either in Army, Navy, Public Health Activities or civilian service.

B. This Organization Provides.

1. Means for obtaining quickly men and women for any services required.
2. Furnishes recommendations and necessary credentials to assure the best of service, both military and civil.
3. Determines beyond question the subject's attitude toward the war.

NOTE.—Through this organization plan, many men will be registered for Army, Navy and Public Health Service who can be called when needed without delay, thereby a Medical Reserve of thousands of men will be created at once which will be immediately accessible for Army, Navy, Public Health and civilian service, no matter how urgent the needs.

Up to the present there have been so many to be called that no great difficulty has been experienced. From now on quick needs will be more difficult to fill, except as they have been anticipated by having a direct line on all those who are willing to serve. This necessity the Volunteer Medical Service Corps fulfills, not alone as relates to war needs, but also to the increasing civilian needs.

C. Civilian Service.

One great need of definite organization is in relation to civilian service. Unless some fixed plan is adopted home people may suffer and medicine itself may be discredited.

This plan registers all medical men and women for all kinds of service and places them within reach of those who know the needs and will arrange for their supply.

D. Recognition.

In the Volunteer Medical Service Corps everyone will have definite recognition of his standing as related to the war and will receive proper credit for service rendered, whether in Army, Navy, Public Health or civilian service.

E. Conservation of the Profession.

If all medical services are conserved, we should not suffer. Indiscriminate placement and inconsiderate acceptance of men for war service may bring suffering, while specific organized handling of all medical forces will afford ample medical attention for all.

Such is the purpose of the Volunteer Medical Service Corps.

Tentative Classification Plan.

1. Fit-to-fight men under 40.
2. Reserves under 55.
3. Home forces over 55.
4. Ineligibles.

Reserves will consist of those who may be called upon for Army, Navy, Public Health and civilian service when necessity requires.

The Home Forces are those who are able to do civilian service only.

Definite Classification.

1. Medical Reserve Corps.
2. Volunteer Medical Service Corps.
3. Ineligible.

NOTE.—1. Such as are needed in the present or near future Army or Navy service.

2. Such as may be called for special Army or Navy and Public Health Service and for all civilian service.

3. Such as have been charged with unprofessional conduct, moral unfitness, or professional inaptitude.

RULES OF ORGANIZATION.

I. *Name.* The name of the organization shall be the Volunteer Medical Service Corps of the United States.

II. *Object.* 1. The object of the Corps shall be to mobilize the medical profession in the present emergency in order to provide for the health needs of the military forces and civil population of the country.

2. Services of members will be called for and rendered in response to requests to the Central Governing Board from the Surgeon-General of the Army, the Surgeon-General of the Navy, the Surgeon-General of the Public Health Service, or the General Medical Board of the Council of National Defense.

III. *The Corps.* The Corps shall consist of all members of the organization. The management of the Corps shall be vested in a Central Governing Board.

IV. *Central Governing Board.* The Central Governing Board shall be appointed by the Council of National Defense and approved by the President of the United States.

V. *Officers.* The Central Governing Board shall direct the activities of the Corps and shall select from among its own members a President, a Vice-President, and a Secretary.

VI. *State Governing Boards.* 1. The State Governing Boards shall consist of the members of the State Committees, Medical Section, Council of National Defense. The State Committees shall select, subject to the approval of the Central Governing Board, from five to ten of their members who are eligible for election in this Corps to act as the Executive Committees of the Volunteer Medical Service Corps in the respective States.

2. The duties of the Executive Committee of the State Governing Board shall be to consider applications for membership in the Corps from the respective States and to submit recommendations regarding these applications to the Central Governing Board.

3. The State Governing Board shall aid in the work of the Executive Committee of the State and perform such other duties as may hereafter be deemed essential by the Central Governing Board to accomplish the purpose for which the Corps was created.

VII. *Membership.* 1. Every legally qualified physician holding the degree of Doctor of Medicine from a legally chartered medical school, without reference to age or physical disability, may apply for membership in the Volunteer Medical Service Corps, provided he is not already commissioned in the Government service.

2. Women physicians are eligible.

3. Application for membership in the Volunteer Medical Service Corps shall be made upon blanks furnished for that purpose by the Central Governing Board for proper classification according to training and special fitness.

4. Any member of the Volunteer Medical Service Corps who wishes to change his classification may appeal to the Central Governing Board.

5. The Central Governing Board shall be empowered to elect from time to time to the Volunteer Medical Service Corps members of sanitary engineering and hygienic professions.

VIII. *Method of Election.* 1. The members of the Corps shall be graduates in medicine who are licensed to practise medicine in their respective States, who have made application for membership, who meet the qualification requirements that are now or shall from time to time be established by the Central Governing Board, who are eligible as under Article VII above, and who shall be elected to membership in the Corps by the Central Governing Board.

2. Each person elected to membership in the Corps shall be designated as a member of the Volunteer Medical Service Corps.

3. It shall be the duty of each member of the Volunteer Medical Service Corps to notify the Central Governing Board when he accepts a Government commission.

IX. *Insignia.* 1. Members of the Corps shall be authorized and required to wear the insignia of the Corps.

2. The insignia and certificate shall be secured by members of the Corps under such regulations as may be determined upon by the Central Governing Board.

3. The insignia shall not be loaned to any person not a member of the Corps, nor shall it be worn after notification that eligibility to the Volunteer Medical Service Corps has ceased to exist; and it shall be returned on demand of the Central Governing Board.

X. Any member of the Corps may be expelled for conduct which, in the opinion of the Central Governing Board, is derogatory to the dignity of the Corps or inconsistent with its purposes.

XI. The Central Governing Board shall be authorized to provide such regulations as shall from time to time become necessary.

XII. *Authorization.* The organization, the insignia, and the certificate have been authorized by the Council of National Defense.

RECENT DEATH.

FRANK ALBERT CROSSMAN, M.D. died at his home in Dorchester, Aug. 5, 1918, aged 59 years. Born in Lewiston, Me., he attended Bates College and received his degree from the Medical School of the University of the City of New York in 1882, and began practice in Fairfield, Me. In 1891 he came to Boston. He is survived by a son and a daughter. Dr. Crossman was a member of the Massachusetts Medical Society.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

MEETING OF THE SECTION OF MEDICINE, JUNE 18, 1918.

THE RELATION OF FOOD IDIOSYNCRASIES TO THE DISEASES OF CHILDHOOD.

BY FRITZ B. TALBOT, M.D., BOSTON.

THE part played by anaphylaxis in the diseases of childhood has opened a new and fascinating field for study and investigation. While more refined technique in the diagnosis of anaphylaxis has thrown much light on many diseases, there still remains much to be learned. The importance of diet in infancy and childhood cannot be over-rated, since it plays an all important part in four-fifths of the diseases peculiar to childhood. At first it was our custom to determine gross errors in diet by the microscopic examination of the stools, to see if there was too much fat, starch or meat passing through the digestive canal, undigested. It is now possible, by means of the "skin test," to find out which particular food is at fault.

The "skin test," which the writer has found most satisfactory, is the linear incision, which breaks the skin of the forearm just enough to draw serum but not blood. To this scarifica-

tion is applied the food protein to be tested. If the patient is sensitive a characteristic urticarial wheal, surrounded by a red roseola appears, the reaction coming in from two to ten minutes, and fades in one-half to two hours.

A careful study of anaphylactic cases has shown that many individuals have a hereditary pre-disposition to sensitization. In twenty-eight cases of asthma studied by the writer, sixty-two per cent. gave a family history of anaphylaxis. In cases, therefore, that give a pronounced history of hay fever, asthma or eczema in the direct ancestors, special care should be taken on introducing a new foreign protein into the diet. It should be given in such a manner that it will cause immunity and not sensitization. For example, if a nursing infant, with a family pre-disposition to sensitization, is given cow's milk at intervals of ten days or longer, instead of daily, it might become sensitized to cow's milk, in the same manner that animals are experimentally sensitized.

During infancy and childhood practically all cases of sensitization are due to foods, since food is the commonest foreign protein with which they come in contact. During growth, however, a child adapts its body and habits to surrounding conditions, and by the time he has reached puberty, he has either learned the

particular foods he cannot take without feeling ill or has taken small amounts of that food at frequent intervals and has gradually become "used to it," that is to say, become immunized. By the time puberty is reached, therefore, the idiosyncrasies to food are relatively uncommon.

In infancy and childhood, asthma, recurrent bronchitis, eczema and gastro-intestinal indigestion are the diseases which are most commonly due to foods. It is wise, however, to bear in mind that although the cause of these diseases in the cases herewith reported has been proved to be anaphylaxis, this explanation cannot be given as the cause for all cases of these diseases. It must also be remembered that although at first sight the problem may seem a simple one, it is, on the contrary, most complicated.

The commonest example of anaphylaxis, which has no doubt come within the experience of every one present, is idiosyncrasy to eggs. This is characterized by violent vomiting, and sometimes diarrhea, whenever the patient takes eggs, especially when raw. The following case is an example of this type:

CASE 1. O. S., boy, 19 months of age. One month previous to coming to the office, was given his first teaspoonful of egg white. His lips immediately swelled up like a balloon, spots came out all over him, and he vomited and had diarrhea. This was followed by an attack of bronchitis with "rattly breathing." His physical examination was negative except for a reddened throat. Skin tests were done and he reacted with a three plus reaction to egg white, and slightly to oat, wheat and beef serum. Since that time he has received no egg in his diet and the symptoms have not recurred.

Immunization as advised by Schloss of New York, by giving minute doses of dry egg powder by mouth in gelatin capsules, commencing with one milligram a day and working up to three or six grams a day, has proved to be very helpful in this type of case. It is thus possible to increase the resistance to egg, so that eventually the patient can take it without any symptoms. In severe cases it is necessary to continue treatment over a period of two or three years. If this is not done the patient will relapse, after the treatment has been discontinued for two or three months.

Asthma in children is, in the large proportion of instances, connected with anaphylaxis

to some food. The commonest offender is egg, but other foods may be the cause, while egg is tolerated perfectly. Occasionally one food is the sole cause of the asthma, but more often a patient is sensitive to more than one. This is especially true of patients sensitive to the grains, which include all the cereals, rice and corn. Such patients usually react to more than one member of the grain family and also are apt to have the spring and early summer type of hay-fever due to grasses.

The following is an illustrative case of asthma due to multiple causes, and is an example of the botanical grouping of the offending proteins, to which Dr. Goodale was the first to draw our attention.

CASE 2. M. A., girl, aged 7 years, seen because of frequently occurring attacks of asthma. She had no symptoms of hay fever. She was a normal breast-fed baby and was perfectly well until 3½ years of age when she commenced to have attacks of coughing, coming every five to six weeks and ending with asthma. Recently these attacks have occurred without being preceded by coughing, and are more frequent at night. She was always able to take all kinds of food with impunity; flowers do not bother her, and a dog in the house caused no apparent ill effects. Her turbinates were cauterized and adenoids removed without relief. On physical examination, she was found to be a perfectly normal, well developed child. Her skin tests were as follows:

Wheat, sl. +.
Rice, sl. +.
Oat, ? reaction.
Corn protein, +.
Rye, ++.
Barley, +++.
Sago, ++.
Pea, sl. +.
Orchard grass, ? reaction.
Dog serum, +.
Hen's feathers, ++.
Chicken protein, ++.

Her skin tests showed that she was sensitive to the botanical family of grains, also to the dandruff of the dog, and chicken feathers. Obviously it was necessary for her to keep away from dogs and chicken coops. The dietary treatment, however, was more difficult as it is almost impossible to eliminate all the grains from the food at one time and eat no starch vegetables but potato. The grains were, therefore, given in sequence of five days each and abstained from for ten days. In this manner

certain grains were not being eaten for two-thirds of the time. The attacks were decidedly modified by this procedure, and she had long intervals of freedom from asthma. She is not, as yet, cured.

There is a group of asthma cases, however, in which sensitization to foods is evidently not the sole cause of the symptoms. In these cases there seems to be some unknown underlying element which plays a part in the disease. This unknown factor may have some connection between either the nervous regulating mechanism or cecal stasis. What this connection is the writer is unable to state, but there have been cases where dietary treatment has been instituted with partial cure and appropriate treatment, designed to meet this underlying element, has apparently completed the cure.

Another of the respiratory diseases of childhood which may be due to foods is croup. This is probably the result of a local reaction of the mucous membrane of the throat when it comes in contact with the food to which it is sensitive. The dietary cause of croup in cases seen by the writer has usually been eggs. The following case is an example of this:

CASE 3. E. B.,* a girl of four years. Her maternal and paternal grandfathers have asthma, and a maternal aunt rose colds. She had slight eczema as an infant. When one year of age she was given her first egg, which caused hives to appear all over her body within fifteen minutes, and her face became puffed up so that it was impossible to see her eyes, but she did not vomit. She had some symptoms of obstruction in the throat which were relieved by an enema. All symptoms disappeared at the end of two days. At two years, she received some pudding by mistake, which contained egg, and the same symptoms returned, with increased severity. The laryngeal obstruction was so great that intubation was necessary. Negative cultures ruled out diphtheria, and the patient gave a marked positive skin test to egg.

It is interesting to note the part played by foods in the bronchitis of infancy and childhood. Of ten cases of recurrent bronchitis studied by the writer, five were found to be sensitive to hen's egg, one to beef juice, two to oatmeal and two to horse keratin.

In the gastro-intestinal disturbances of ana-

phylactic origin in young children, sensitization to eggs is most commonly found, but idiosyncrasies to cow's milk are not uncommon. Sensitization to cow's milk usually manifests itself by vomiting, even when given in minute doses as small as ten drops. The following is a case of this type due to an idiosyncrasy to cow's milk:

CASE 4. Girl, 5 months old, had to be weaned suddenly because the mother's milk gave out, and she was losing weight. Five days later she had symptoms of indigestion which disappeared after two or three days. On about the eighth day after the first indigestion of cow's milk, the digestive symptoms had entirely disappeared, but she had an urticarial eruption break out all over her face and body, which was so marked that she could not open her eyes. She was found to have an idiosyncrasy to cow's milk. The cow's milk, nevertheless, was continued and the symptoms disappeared for good. In two cases previously reported by the writer¹ the children became so sensitive to cow's milk that their stomachs did not tolerate even minute amounts. These children thrived on goat's milk. Not all cases, however, with an idiosyncrasy to cow's milk are so fortunate as to be able to drink goat's milk. Such cases must be immunized in a manner similar to the method used in immunization against eggs.

Eczema in childhood, when not obviously due to too much sugar or fat in the diet, may be due to some individual food component. In a series of cases of eczema studied by the writer a positive skin test was most commonly obtained for egg white and cow casein. Eczema may, however, be due to other food proteins, such as rice. The following case is an example of this:

CASE 5. G. D., girl, aged 17 months, started to have eczema after being weaned. Various forms of treatment were tried and the fat in the food was reduced without improvement. When first seen she had eczema of the neck and face which simulated urticaria in places. Her skin was tested and reacted to rice, hen's egg and cow casein, while wheat, pea and barley proteins were negative. Subsequent events showed that the eczema was primarily due to rice and could be controlled by omitting it from the diet.

* Previously reported N. Y. State Jour. Med., 1917, Vol. 17, No. 9, p. 421.

¹ Idiosyncrasy to Cow's Milk; Its Relation to Anaphylaxis, Boston Medical and Surgical Journal, 1916, clxxv, No. 12, p. 409.

As a child grows older, anaphylaxis due to foods is less commonly seen, and is succeeded by the inspired asthmas and hay fever, due to the pollens of the flowers or to the emanations from horses or other domestic animals. This type of asthma may last through life and is common in adults. It does not, however, come within the scope of this communication. The bacterial asthma, as a rule, do not develop in early childhood, but are said to be common in adults. The writer has not seen any cases of asthma due to bacteria in the children studied.

A CLINICAL STUDY OF 400 PATIENTS WITH BRONCHIAL ASTHMA.*

By I. CHANDLER WALKER, M.D., BOSTON.

My aim in this paper is to present as many useful facts as possible in the determination of the cause and the treatment of bronchial asthma. These facts which have been obtained from a study of 400 patients with bronchial asthma may all be used to advantage by you in general practice.

The cases were about equally divided between the two sexes; there were 198 males and 202 females in the series. The nationality of the patient played no part in the cause or the frequency of the disease; so-called neurotic races, as for instance the Jewish race, were no more prone to asthma than other nationalities. Occupation, as a rule, played no part in the cause or frequency of asthma; however, occasionally, occupation did have a bearing upon the cause of asthma. For instance bakers frequently have bronchial asthma from the inhalation of the flour with which they work. Two unusual instances where occupation bore a direct relationship to the cause of asthma are sufficiently interesting to mention. A man whose work consisted of sifting green coffee beans became sensitized to the protein in the green husks and had asthma from the protein. Another man whose work was that of a jewel polisher became sensitized to the protein in the dust from the boxwood with which he polished the jewels. An enquiry also should be made always in regard to the presence of pet and domestic animals at the patient's home, and where he works.

The mode of onset of asthma or the symptoms preceding asthma have little bearing upon the cause since in the majority of cases the onset is with what the patient calls a cold or bronchitis. Frequently these colds and attacks of bronchitis are not such in the sense of a disease or an infection but instead they are the first symptoms of sensitization to some protein, and months may elapse before the physician realizes that the patient has asthma; and the association of eczema with bronchitis and asthma is of considerable importance, since such patients are frequently sensitive to some type of protein; and the younger the patient is when these conditions manifest themselves the more probable it is that the patient is sensitive to some food protein. This is especially true in infancy.

The time of the year at which the patient began to have asthma, and the season of the year, if it always limits the attack of asthma, are important. Attacks of asthma which occur only during the summer months are usually caused by the protein in the pollen of plants. In many instances this summer type of pollen asthma is prolonged throughout the year by bacteria which, because of the patient's lowered resistance, cause a bronchitis, and this in turn causes asthma. In a few instances the early type of a summer asthma is due to bacteria rather than to pollen. A number of patients have asthma only in the early spring (March and April) and in the late fall (October and November) and these patients associate asthma with the changeable weather; in such cases bacteria are frequently the cause. Some patients have asthma only in the winter months when the air is clear and cold and bacteria are again the cause.

The length of time that a patient has had asthma is important, since one must bear in mind that the longer one has asthma the more pronounced may be the resultant bronchitis and emphysema, so that the asthma may not be relieved by removing the offending cause but the bronchitis must also be treated. The age of onset of asthma is most important, but before we go into this we must define sensitization and outline the methods of testing a patient to determine whether he is sensitive or not.

When a person is sensitive or anaphylactic to a particular substance, ill effects or certain

* Read before the Ontario Medical Association in conjunction with the Canadian Medical Association, at Hamilton, Ontario, May 30, 1918.

symptoms are produced in that person by the entrance of that substance into his body. One type of ill effect or symptom is an attack of bronchial asthma. We also know that it is the protein element in that substance that causes asthma, and we must not lose sight of the fact that proteins are most widely distributed in nature. Therefore patients may be sensitive or anaphylactic to proteins and if so these proteins may be the cause of bronchial asthma. Proteins enter the body by inhalation, by ingestion, by absorption and by infection. Inhalation takes place through the respiratory tract and chiefly concerns the protein in the pollen of plants, in the emanations and hair of animals, in the flour of cereal grains and in some kinds of dust. Ingestion has to do with the protein in food and we know that foods, after entrance into the gastro-intestinal tract, do cause asthma. Absorption, apart from inhalation and ingestion, concerns the conjunctivae and to a less extent the skin. By infection we mean the presence of pathogenic bacteria in any part of the body but more especially foci of infection located in the teeth, tonsils, nose, throat and lungs. In the case of bacteria we have to deal with the protein element as well as with the infectious element.

There are several ways of testing a patient in order to determine whether or not he may be sensitive to protein. One commonly used method is known as the intradermal test which, in our experience, has proved to be too sensitive and too delicate, if not erratic. The test which has proved to be safe and reliable as regards hay-fever and asthma is the skin or cutaneous test, which is performed as follows: A number of small cuts, each about one-eighth of an inch long, are made on the flexor surfaces of the forearm. These cuts are made with a sharp scalpel, but are not deep enough to draw blood, although they do penetrate the skin. On each cut is placed a protein and to it is added a drop of tenth-normal sodium hydroxide solution to dissolve the protein and to permit of its rapid absorption. At the end of a half hour the proteins are washed off and the reactions are noted, always comparing the inoculated cuts with normal controls on which no protein was placed. A positive reaction consists of a raised white elevation or urticarial wheal surrounding the cut. The smallest reaction that we call positive must measure 0.5

cm. in diameter and any smaller reactions are called doubtful. Negative skin tests with protein rule out those proteins as a cause of asthma and all proteins which give a positive skin test should be suspected as a cause of asthma. In the case of bacteria, however, the skin test has to do only with the protein element, so that even though bacteria give a negative test, they may still be a cause of asthma through their infectious nature, and the patient need not be sensitized to bacterial protein.

Of the 400 cases studied, 191 or 48% gave a positive skin test and were therefore sensitive to some protein. According to sex, 53% of the sensitive cases were males and 47% were females; and of the total number of males studied, 51% were sensitive; and of the total number of females, 44% were sensitive. Therefore, although the prevalence of asthma between the two sexes was about equally divided, the percentage of sensitive cases was a little higher among the males than among the females. While considering the above percentages of sensitive cases it should be borne in mind that doubtful and slightly positive skin tests are not being counted; only those reactions which were a distinct urticarial wheal measuring 0.5 cm. or more in diameter are included, so that the number of sensitive cases is computed on a very conservative basis.

The following table is presented in order to show the importance of the age of onset of bronchial asthma. In the first column the age of the patient is divided into five year periods with the exception of the first five years of life which is subdivided into two periods, namely, under two years of age, which corresponds to infancy, and between the ages of two and five. Other columns, by following across the page on a line with the age of onset, show respectively the number of cases, the percentage of cases, the number of sensitive cases, the percentage of sensitive cases and the number of cases sensitive to the protein which are found in the four principal sources, namely, animal hair, food, bacteria and pollens at that particular age of onset of asthma.

It is noted that about the same number of patients had their first attack of asthma at each period of years with the exception that after the age of 45 years there was a great decrease and after the age of 60 there were only three cases; it may be surprising to know

AGE AT ONSET OF ASTHMA	NUMBER OF CASES	PER CENT. OF CASES	No. SENSITIVE TO PROTEIN IN			
			NUMBER SENSITIVE	PER CENT. SENSITIVE	ANIMAL HAIR	FOOD
Under two years	34	9.0	28	83	19	23
Between 2—5	30	7.5	27	90	14	9
" 5—10	37	9.0	15	40	12	5
" 10—15	35	9.0	24	70	6	3
" 15—20	26	6.5	14	54	8	5
" 20—25	42	10.0	22	52	6	7
" 25—30	35	9.0	17	49	7	1
" 30—35	43	10.0	21	49	3	4
" 35—40	52	13.0	12	23	2	3
" 40—45	37	9.0	9	24	1	4
" 45—50	9	2.2	2	22	0	0
" 50—55	11	2.7	0	0	0	0
" 55—60	6	1.5	0	0	0	0
Over 60	3	0.7	0	0	0	0
Total	400		191	48	78	68

that the number of cases that developed asthma under the age of two and between the ages of two and five was as great as at any other age. The relationship between the age of onset of asthma and the sensitization of the individual is important. Of the patients who began to have asthma under the age of two, 83% were sensitive to some protein; of those whose onset was between two and five, 90% were sensitive; of those beginning asthma between 5 and 10, 40% were sensitive; of those between 10 and 15, 70% were sensitive; of those having onset of asthma during the succeeding 5 year periods between the ages of 15 and 35, 52% were sensitive for each period; between the ages of 35 and 50 only 23% were sensitive; and after the age of 50 no patients were sensitive. The above statements may be summarized as follows: 83% of the patients who began to have asthma during infancy (under the age of two) were sensitive; during childhood or between the ages of 2 and 15, 66% were sensitive; during young adult life or between the ages of 15 and 35, 52% were sensitive; during middle life or between the ages of 35 and 50, 23% were sensitive; and none were sensitive when the age of onset of asthma was after 50. Stated briefly, four-fifths of the patients who began asthma during infancy were sensitive; two-thirds who began during childhood were sensitive; one-half of those beginning asthma during young adult life were sensitive; one-fourth of those beginning asthma during adult life were sensitive; and none were sensitive that began asthma after the age of 50. As the age of onset of asthma increases, the frequency of sensitization decreases, and the knowledge of this is a great help in practice.

The relationship between the ages of onset of asthma and sensitization to different types of protein is also very important. In the table, it is noted that nineteen patients, who began to have asthma under the age of two, were sensitive to animal hair proteins; of this number, ten were sensitive to the proteins of horse hair alone, one to cat hair alone, and the other eight patients were sensitive to the proteins of the hair of horse, cat and dog, although they were more sensitive to the hair of horse than to the hair of the cat or dog. Of the patients whose onset of asthma was between the ages of two and five and between five and ten, fourteen and twelve patients respectively were sensitive to the proteins of animal hair, and in each instance eight of these patients were sensitive to horse hair proteins. Succeeding ages of onset of asthma show a gradual decrease in the number who were sensitive to animal hair protein. Sensitization to food proteins was by far most frequent among those patients who began to have asthma during infancy. Of the twenty-three patients, nine were sensitive to egg protein, eight to the cereal grains, and three to milk. Of the nine patients who began asthma between the ages of two and five and who were sensitive to food proteins, two were sensitive to egg and five to cereal grain proteins. Succeeding ages of onset of asthma show about a constant average of frequency in the sensitization to foods, but the frequency of sensitization to egg, milk and cereals is much less than for other food proteins, such as fish, meat and potato.

The frequency of sensitization to the bacterial proteins was about the same for all ages up to 40 years. More patients were sensitive to the protein of *Staph. pyog. aureus* than to any other type of bacterial protein. However, sensitization to the protein of *Staph. pyog. albus* and the various streptococci was sufficiently frequent to warrant routine tests with these. In the above table the number of positive reactions with bacterial proteins is too conservative, since many definitely positive reactions which do not measure 0.5 cm. in diameter are obtained.

It is of interest to note the effect of occupation on sensitization after the age of 40. Of the eleven patients who became sensitive to proteins after the age of 40, four were bakers and were sensitive to wheat protein, one was a

hostler and was sensitive to horse dandruff protein, and another who was a sifter of green coffee beans was sensitive to green coffee protein; therefore in over half of these cases occupation was responsible for the cause of asthma.

In the table it is noted that 78 patients were sensitive to the protein derived from animal hair. Of this number, 43 were sensitive to horse hair alone, 5 to cat hair alone, 3 to feathers alone, 2 to cattle hair alone, one to wool alone; the remaining 24 patients were all sensitive to horse hair in combination with either dog hair or some of the other types of hair. Therefore, of animal emanations, the protein of horse hair is by far the most frequent cause of asthma and the hair of the dog is the least frequent cause of asthma.

Of the 68 patients who were sensitive to the food proteins, 35 were sensitive to the cereal grains, and of these 35, 25 were sensitive to wheat alone, 3 to corn alone, 2 to rice alone, and the remaining 5 patients were sensitive to all of the cereal grains. Among the 33 remaining food cases, 13 were sensitive to egg, 5 to casein, 8 to fish, and 7 to potato; an occasional patient who was sensitive to one of these types of protein, was also sensitive to some other food protein, such as beef, chicken or spinach, but sensitization to foods other than those already mentioned was unusual. Therefore one-half of the food cases were sensitive to the proteins of the cereals, and wheat was by far the most common food to cause asthma; next to wheat in frequency came egg, then fish, potato and casein were close thirds, and other foods were too infrequent to be enumerated.

Of the 92 patients who were sensitive to pollens, 17 were sensitive to the early pollens, and timothy was the chief one of these, 45 were sensitive to the late pollens and ragweed was the chief one of these, and the remaining 30 patients were sensitive to both early and late pollens. Sensitization to rose, red top, daisy and golden rod was infrequent.

There is one more important point which the above table illustrates, namely, multiple sensitization or sensitization to more than one type of protein. For instance, if we add together the number of cases who were sensitive to horse hair, food, bacteria and pollens, we have a total of 272 sensitive patients, whereas, in reality, there were only 191 sensitive patients

in the series. In other words, some of the patients were sensitive to more than one type of protein. On consulting the table it is noted that multiple sensitization is by far most frequent among those patients who began to have asthma during infancy, that it is quite frequent among those beginning asthma between the ages of two and five and between five and ten, but after these ages multiple sensitization is not very usual. Since the majority of the patients in this series were young adults or older when tested, it is fair to assume that the longer a sensitive patient has asthma the more apt he is to be sensitive to more than one type of protein, and sensitization to one protein early in life is apt to be followed by sensitization to other proteins early in life; and vice versa, non-sensitization early in life is not so apt to be followed by sensitization later on. Among the few infants which were tested in this series, multiple sensitization was frequent.

A positive skin test with several different proteins may mean that all of them are causing asthma or that only some of them are causing asthma at present and that the others have been or may be in the future the cause, or even it may mean that none of the proteins are at present the cause, but that they have been the cause, and now secondary infection is the chief cause of asthma. Treatment will naturally reveal the present cause. Suffice it to say that positive skin tests by proteins which seem to have no bearing on the cause of asthma should be considered as danger signals and not as false reactions; such positive tests should not be disregarded.

The treatment of sensitive cases is largely a matter of judgment in deciding which positive test should be first investigated. If the patient is sensitive to food proteins, such foods should be omitted from the patient's diet for at least a month in order to see what effect they have on the asthmatic condition. In this series of cases nearly all of such patients have been relieved of asthma. In a few instances, however, because of the associated bronchitis, autogenous sputum vaccines have been required in conjunction with the restricted diet. Attempts to desensitize the patient against offending food protein by the subcutaneous injection of or by feeding gradually increasing amounts of the protein have failed. We have reasons, however, for believing that total abstinence from the offending protein

for a long interval automatically desensitizes the patient for that protein.

Patients who are sensitive to bacterial proteins may be successfully desensitized against such by treatment with vaccines of those organisms, but great care must be exercised not to give too large and too rapid an increase in the amount of vaccine. The first dose of vaccine should not be larger than one hundred million bacteria, and each succeeding dose should not be more than fifty million over the preceding dose.

Before treatment is undertaken for those patients who are sensitive to the protein of horse dandruff or hair and of pollens, skin tests must be done, using various dilutions of these proteins. Treatment should be begun with the dilution next higher than that which gave a positive test; the first dose should be small, usually 0.1 cc., and each succeeding dose should not be more than 0.1 cc. over the preceding one. These treatments may be given at five-day or seven-day intervals. The treatment of patients who are sensitive to hair proteins with the serum of that animal is of no avail, and is very dangerous. Patients who are sensitive to pollen proteins should be treated in anticipation of the season. Occasionally it is necessary to use vaccines in conjunction with the animal hair proteins in order to benefit the associated bronchitis, but usually this is not the case.

Those patients who show multiple sensitization, that is, those who give positive skin tests with many different types of proteins are the most troublesome to treat; in such cases treatment is a matter of judgment. Not an unusual case is one who gives positive skin tests with the proteins of wheat, horsehair and pollens. Naturally wheat should be omitted from the diet anyway, and if the patient is exposed to horses treatment should be given with the horse hair proteins, in fact such treatment is advisable since the patient may be at any time so exposed, and in anticipation of the pollen season the patient should be desensitized against these. Thus all possible known causes will be eliminated. Even then autogenous sputum vaccines may be required.

The results of dieting in those sensitized to food proteins and the results of treatment with animal hair, pollen and bacterial proteins in those so sensitized have been most successful.

And in those patients who have not been relieved by such treatment, autogenous vaccines have been of much benefit. The permanency of relief depends upon the amount of treatment and the patient's power of resistance.

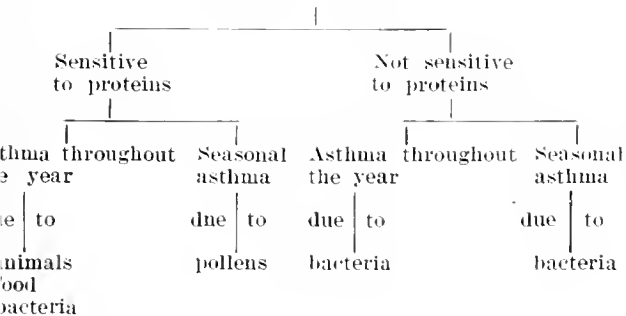
The non-sensitive patients, or those who fail to give positive skin tests with proteins, may be disposed of in a few words since there is little to guide us in the cause and treatment of asthma. Occasionally the serum of such patients positively agglutinates some type of organism, and treatment with vaccines of that organism frequently benefits their asthma. The non-sensitive patient usually presents the symptoms and physical signs of bronchitis; he gives a history of persistent cough between attacks and there are râles in the lungs between attacks. Often these patients are relieved or greatly benefited by autogenous vaccines, consisting of the predominating organism in their sputum. These vaccines are prepared as follows: thick sputum, which is raised after a paroxysm of coughing, is washed repeatedly in sterile normal saline, and a portion is streaked on large surfaces of plain agar and another portion is shaken and macerated in dextrose bouillon, from which tubes of blood agar are inoculated and plated. The plain agar facilitates the identification of some organisms and the blood agar identifies the various types of streptococci. The most satisfactory results follow treatment with the predominating organism. The largest number of patients have been relieved by vaccines of *Staph. pyog. aureus*, *streptococcus hemolyticus* and diphtheroid organisms when these have been the predominating ones isolated from the sputum. Other organisms may predominate and cause asthma. For instance, one patient has been relieved by an atypical Type II pneumococcus, another by Friedländer's bacillus, a few by an unidentified Gram negative staining bacillus, a few by *Staph. pyog. albus* and by *Streptococcus viridans*; in each instance the predominating organism was the one used. Occasionally patients are troubled more from a catarrhal condition of the nose and throat than from cough, and in such cases it is often necessary to use vaccines made from these sources of infection. Naturally the teeth, tonsils and sinuses may be the seat of infection, and such foci, if present, should be attended to. In general, however, we are inclined to be very conservative in regard

to operations as a relief for asthma, and the possibility of sensitization to proteins should first be ruled out.

We feel that the following is a good and useful classification to use in determining the cause and treatment of bronchial asthma.

CLASSIFICATION OF CAUSES OF BRONCHIAL ASTHMA.

BRONCHIAL ASTHMA.



After what has been noted in this paper, the above classification needs no description. Although neurasthenic, neurotic and psycho-neurotic conditions are frequently associated with bronchial asthma, we feel that these conditions are not sufficiently often a cause of asthma to warrant a place among causes of asthma. Furthermore, no provision is made for so-called cardiac and renal asthma, since we do not accept shortness of breath on exertion, nocturnal dyspnea and bronchitis, all of which are associated with cardiac and renal disease as bronchial asthma. The combination of all of these symptoms does in a way simulate bronchial asthma, but for such a syndrome we feel that the term asthmatic bronchitis is more appropriate; such a term would imply bronchitis with asthmatic symptoms, and this is really the true condition present. Cardiac and renal patients may have true bronchial asthma; however, in these cases the asthmatic condition is entirely separate from the cardiac and renal disease; they are two distinct conditions not dependent upon each other.

THE PRESENT STATUS OF IMMUNIZATION IN HAY-FEVER.

BY J. L. GOODALE, M.D., BOSTON.

THE object of the following paper is to present briefly the results of an investigation begun in 1914, with the purpose of determining the value of desensitization in hay-fever.

Since the method was initiated by Noone and Freeman in 1911, the literature has become increasingly filled with reports from various ob-

servers, who have in general expressed themselves favorably as to the results obtained.

In an experience covering four years the writer has come to the conclusion that the majority of the reports hitherto published have not taken sufficiently into account the variability of the seasons in regard to the abundance of pollen produced, as well also as individual and temporary alterations in the physical state of the patients. It has seemed to me, therefore, preferable in the present communication to present a study of a relatively small number of patients, where the treatment has been carried out for not less than two years, in order to eliminate so far as possible such modifying factors.

In the examination of a given case of hay-fever, the first point to determine is whether the vasomotor symptoms are actually excited by the pollen of plants, or whether they arise in response to a stimulation of the nasal nerves through other agencies. A fairly large proportion of the cases which have come under my observation have shown no response to any of the pollens tested, but have been excited by the fragrance of certain plants, such as lilies of the valley, sweet peas, hyacinths, lilacs, etc. In these plants the amount of pollen disseminated must be extremely slight, owing to the relatively small amount produced in the flower, and by the heavy and viscid character of the pollen grains themselves. Tests, moreover, with the pollen in such cases has failed to show a skin reaction, although the patient within the radius of the fragrance of the flower will be thrown into more or less violent attacks of sneezing or even of asthma. Such conditions I have termed in a previous paper olfactory vasomotor rhinitis or pseudo-hay-fever. It is therefore of great importance to test all cases on the skin even though their symptoms may be distinctly seasonal. I have, however, noted, that these olfactory types of vasomotor rhinitis display their symptoms usually during the earlier summer months. In most instances patients whose symptoms develop only in late August and early September, have been of the true anaphylactic type due to ragweed.

SEASONAL VARIATIONS IN HAY-FEVER.

A word should be said in regard to the variations which hay-fever cases show in the intensity of their symptoms from year to year.

Aside from individual changes in health or intrinsic resistance, hay-fever symptoms may be considered directly dependent upon the amount of pollen which is received by the individual upon the mucous membranes. A person living in the city receives naturally a smaller quantity than one whose work and recreation bring him more directly into the country. Aside from this factor, the character of the season should be noted. Hay-fever producing plants, if trees or well-established shrubs, are less likely to exhibit variations from year to year, whereas both grasses and ragweed will exhibit marked variations dependent upon the season. We should remember in respect to grasses, that these are essentially plants preferring cool, moist weather, and that the amount of pollen produced will be greater under these conditions, than where the season is hot and dry. The ragweed, on the other hand, is the most Northern representative of a Southern group of plants, and is especially dependent upon heat for its proper maturity. This explains its absence in Bethlehem, N. H., and similar localities, where the seasons are too short to enable it to ripen its seeds. The time of occurrence of ragweed hay-fever depends in great measure upon the earliness of the spring, and observations carried on for a period of five years have shown, with a normal May temperature of 58, the time of flowering ragweed in my locality is August 25th. If the May temperature is distinctly below the average the time of flowering is retarded, and is not even sufficiently accelerated by a hot July and August.

When a patient presents himself for the treatment of hay-fever, it should be first determined whether in the individual case desensitizing treatment should be recommended, or whether the patient should be advised to seek refuge from his symptoms by a change of climate. In regard to the early forms of hay-fever, namely from the trees and grasses, it should be recognized that the so-called hay-fever resorts will not afford relief, since these have reference only to the freedom of the locality from ragweed. A patient who wishes, therefore, to escape the early forms should direct his face to the South or far West, where the conditions are such as not to favor the development of grasses, or where the particular trees either are absent or have finished flowering.

A case of spring hay-fever will therefore find immunity in the South or in California, but naturally such a change of climate at this season may present obstacles. These spring cases may therefore usually be advised to have immunizing treatment. In the case of ragweed hay-fever, the time of its occurrence coincides with the vacation period of many persons, and the prescription of a change to the mountains or maritime provinces contains much that is agreeable. I have advised those persons, whose circumstances permit, to go into localities free from ragweed, rather than to undertake the treatment.

A review of the true anaphylactic cases observed during the past four years shows that they may be divided into three main groups: namely, those occurring before the flowering of the grasses in April and May, and dependent upon certain trees which disseminate a large amount of pollen, such as the maple, willow, birch and oak; second, the grasses in late May and throughout June; third, by far the largest number, in August and September, from the ragweed. A few patients are also found during the period of the flowering grasses, where the symptoms have been shown to be due to members of the rose family. The history of the patients enables us therefore to simplify the procedure in our diagnostic tests. Cases whose symptoms appear in April or May, and cease in June, may be confidently regarded as not dependent upon either the grasses or the ragweed, and are consequently to be tested with the pollen of the early flowering trees which occur in the individual's neighborhood. Those with symptoms in May and June, terminating in July, are to be tested by grass, oak and rose pollen, while finally the August and September types may be immediately examined with regard to the degree of sensitization which they show to ragweed.

The diagnosis of the special exciting cause is made by application of the pollen suspected to a superficial scratch on the skin of the arm in the usual manner. I may repeat here the observations of a previous paper that a knowledge of the phylogenetic relationships of the various plants enables us to curtail materially the number of tests. One grass pollen will suffice for all grasses, one rose pollen for all members of the rose family, and ragweed pollen for all of the compositae.

COLLECTION AND PRESERVATION OF POLLEN.

One may in this vicinity feel reasonably confident that he can treat the cases which present themselves if he has pollen of the following plants: willow, poplar, maple, birch, oak, grass, rose and ragweed. Although frequently accused by patients of producing hay-fever symptoms, horse chestnut, lilac, honeysuckle and peonies have not produced skin reactions. The pollen is best kept dry and will preserve its activity for many years, although after being once thoroughly desiccated, it requires soaking for a longer time for the preparation of the extract.

Investigations carried out by R. P. Wodehouse for me in 1915 showed in the case of ragweed pollen that there were present albumen and proteose, both capable of exciting skin reactions. The globulin present did not cause skin reaction in ten cases which were tested, and probably therefore need not be considered as an anaphylactic factor. The albumen is relatively unstable in solution, being readily affected by exposure to air, and is precipitated by boiling and treatment with alcohol in strength above 14%. Freshly prepared pollen extracts given a skin reaction of a certain size, will, if exposed to air, after the lapse of a few weeks, even though prevented from decomposition by phenol, show a reaction of decidedly smaller extent, and the preparation has at the same time become distinctly cloudy. Also freshly prepared pollen extracts show on boiling or treatment with alcohol an immediate clouding and a loss of their skin reactions of about one-half. The preparation, after this first diminution in its activity by coagulation of its albumen, will then show a skin reaction of the same degree of intensity for a much longer period, at least for several months. Since, therefore, we are dealing with a material containing an extremely unstable albumen, and a relatively stable proteose, our task is to obtain, if possible, a pollen extract which will retain a constant degree of activity for a sufficiently long period to enable us to make comparative observations from time to time in the same case. This may be accomplished either by placing the freshly prepared pollen extract treated with sufficient phenol or some similar antiseptic in tightly closed receptacles, and withdrawing, as occasion requires, the amount needed without exposure to air, or

by placing definitely measured amounts of the pollen solution in small vials, and rapidly evaporating to dryness, re-dissolving again when needed. Both of these methods are already in use, and will, I believe, give good results. I have, however, for my own work, made use of the effect of alcohol on the albumen to effect its coagulation, and make my own preparations as follows:

The pollen is obtained in the usual way as described by Wodehouse. One gram is soaked in a small amount of normal salt solution for forty-eight hours and filtered. The filtrate, which contains albumen, proteose and other proteids, is then treated with sufficient alcohol to bring the alcohol content up to 20%, by which albumen is thrown down in the form of flocculent precipitate. To this fluid is added enough 20% alcohol to make a volume of 500 C.C. In this, which is termed our standard extract, we have the amount of proteid extractable from one gram of pollen contained in 500 C.C. of 20% alcohol. Dilutions of this are made in the proportion of 1-2000, 1-5000, and 1-50,000. Both in making these dilutions and in giving the injections, the bottle containing the material should be shaken sufficiently to distribute equally the suspended particles of albumen.

ADMINISTRATION OF POLLEN EXTRACTS.

The injections are started, if possible, several weeks before the expected attacks, although they have seemed of value even after the symptoms have begun. In the first instance we may speak of prophylactic treatment, in the second, of abortive treatment.

PROPHYLACTIC TREATMENT.

I advise patients to report, if possible, ten weeks before the expected onset of their attacks, although a shorter period is usually sufficient. The ordinary course of procedure is to inject from one to three minims of the 1-50,000 dilution. This causes in nearly all cases subcutaneous swelling ranging from one to three centimeters in transverse diameter, lasting from one to three days. This material as above made with coagulated albumen produces a different effect than does the injection of material of equal strength, where the albumen is in solution. In the first instance the local reaction is not immediately as marked, and requires a longer time

for its disappearance. Second, the coagulated material has not caused any of the general anaphylactic disturbances of which a few had been previously seen in using the dissolved albumen. After the reaction from the first injection has subsided, one may then double the amount, and a few days later give twice the amount of the second injection. The next higher strength of 1-5000 is taken, and three injections of this are given, ranging from three to seven or eight minims. Next a similar quantity in three doses is given of the 1 to 2000, and finally the full strength of 1 to 500, in doses ranging from 5 to 10 minims. The number of injections required during the first year has ranged from six to fifteen, depending upon the rapidity with which the dosage can be increased.

ABORTIVE TREATMENT.

If the individual reports at the beginning of his hay-fever, I have adopted the method of giving small daily injections, without waiting for a subsidence of the reactions, the successive injections being made in the forearms and upper arms respectively. I do not believe that it has been demonstrated beyond dispute that in these cases there has been a positive arrest of the symptoms as a result of the injections, but nevertheless, so large a proportion of cases so treated have had the symptoms disappear in the course of a week, which would ordinarily have persisted for six weeks, that I am induced to continue this as the best means of affording relief.

At the close of the hay-fever season the patient may be assumed to have attained a relatively high degree of resistance to the pollen in question. With the omission of treatment the sensitization slowly and progressively returns, until at the beginning of the following year the skin tests show the same degree of intensity which they did originally. This fact is striking and has been brought out in all the cases under observation. An individual, for instance, who shows a No. 1 reaction, will, year after year, show one of the same degree, and a No. 4 reaction will, each spring, appear as a No. 4.

RESULTS OF TREATMENT.

Since the spring of 1914 I have examined in private practice 330 cases of hay-fever. (The new cases appearing during the current year are not included, as they comprise, at the present

date, June, a disproportionately large number of spring types.) In addition there were seen 18 cases of olfactory vasomotor rhinitis of a seasonal form.

Of the true anaphylactic type, 90 were from grasses, 237 from ragweed, 5 from maple, 4 from roses, 3 from oak, 1 from willow and 5 from birch. In these latter groups are reckoned only those patients whose symptoms were unmistakably and preëminently due to the plants in question. Cases, for instance, of grass hay-fever, giving also a moderate rose or oak reaction, are not included. A fairly large number, however (about 10%), of the grass cases, showed definite ragweed reactions and symptoms.

Of the above 330 cases of true hay-fever 123 have received desensitizing treatment for two or more years. I have endeavored to classify the results according to the statements of the patients in connection with my own estimate of the situation, into four groups, as follows:

1. No improvement noted, 7 cases.
2. Improvement as compared with previous years, but showing, nevertheless, troublesome symptoms for a short time, 46 cases. These patients in general may be considered as only moderately well-satisfied with the results, and, in my opinion, were not materially better than most cases treated in previous years by cauterization and general hygienic measures.
3. Very definite improvement, apparently beyond criticism, was observed in 59 cases. These include patients with a previous history of severe attacks, who, under treatment, exhibited only slight symptoms, causing not more than moderate annoyance. Here are included patients with a previous history of hay asthma, who were able to go through two or more summers without asthmatic symptoms.
4. Five patients showed no hay-fever for two or more years. By this is meant complete absence of subjective or objective vasomotor disturbance, in spite of full exposure to pollen.

In examining further the results which have been accomplished we may consider first whether any difference has been observed in regard to the three types of hay-fever found, whether of the grass or ragweed or of the other scattered forms. No appreciable difference was observed between the grass and ragweed cases in this respect; but it should, however, be said that the early spring forms from maple and

birch, which usually occur in association, while few in number, have been the least successful in overcoming the vasomotor symptoms. Whether this is due to some unrecognized pollen or not is uncertain, but a careful survey of the patient's neighborhood has failed to show any other trees or shrubs which might have been of influence. Dr. Key has reported from Texas severe hay-fever from the mountain cedar. I have not tested patients with the counterpart of the tree, namely, our common red juniper; but its distribution is limited, and it would seem unlikely that it could prove a factor. None of these cases has reacted to the pollen of pines which is so abundant at the season in question.

Another point to consider is the relative success achieved in the first two and the latter two years during which this form of treatment has been carried on. The essential difference in the mode of treatment in the last two years has been the use of larger doses with insoluble pollen. It has been observed that cases treated for three or four years have shown an improvement directly proportional to the amount of albumen employed in the preparation, and during the last season (1917) the proportion of cases who reported great improvement or complete immunity was larger than in the first two years, where an albumen in solution was employed. I prefer now to bring all cases up to a tolerance which enables them to receive a dose of five minims of the 1-500 solution.

DISCUSSION.

DR. J. A. TURNBULL, Allston: As to Bethlehem for a hay-fever resort it has improved some patients and on others it has had no effect, and still others it has made worse. The hay-fever cases should be tested out not only for the pollen but also for the foods and bacterial sensitizations. I have seen a number of cases in which the foods show marked reactions, but no objective or subjective disturbances during the other seasons. If the foods are taken at the time of the hay-fever season, with the inhalation of the pollen, which increases the amount of sensitive proteins, it is more than the patients can stand and their symptoms are made worse. I have found in a number of cases that at the time of the hay-fever, omitting those foods from the diet the patients were much better and easily desensitized, and their symptoms improved in every way.

As to the treatment of hay fever, I think a great deal depends on what media we use for the solvent for our proteins. I have worked out a number of solvents and have found great differences in the reactions. I have been working with those which gave greatest reactions, and am waiting to see the results of autumnal cases. Spring cases showed great improvement. We often find many cases commence in the early spring and continue through to the early fall. I have seen some beginning with oak and birch and then are kept going by the grasses and the ragweed. Those cases continually load up first with one pollen and then with the others. They are extremely sensitive as to treatment. I have seen cases in which one or two doses of pollen protein have given a marked relief—even after one dose I have seen cases in which the symptoms were relieved at once. Other cases are more sensitive and take a greater number of doses. Occasionally we come across a person who does not react well to pollen. No doubt with the work which is being carried on, you will later on find something that is going to assist in those cases. Another thing is that with the pollen cases they often continue beyond the season. Those cases I have found are due either to some special food or to a bacterial protein. By omitting the food from the diet some cases are improved at once. In other cases where it is a bacterium I use the extract of the bacterium which has been used for the test; a solution made of this for desensitization, instead of the regular vaccine.

I have been greatly pleased with the papers that have been read this afternoon, and have enjoyed them very much.

DR. W. H. SMITH: I think anything that tends to bring asthma out of the murky darkness of a neurosis is of extreme value. We have tried to present to you up to date the work that is being done on hay-fever and asthma, and I have asked some of the men who are constantly seeing cases of asthma, and who saw cases before the vaccine and protein sensitization reactions were recognized, to speak about asthma and their experience with it before the fact was recognized and after—namely, in their experience are the asthma cases more clearly defined? Are the methods of treatment helping them to solve their problems in the asthma

cases? I will ask Dr. Taylor of Cambridge to say something.

DR. F. W. TAYLOR, Cambridge: After these scientific papers a general practitioner can add nothing of importance. You ask for my results and my experiences before and after the present methods of treatment. The cases I have seen have been so few that really no important conclusions can be drawn from them. I have seen some cases that have been treated in a modern way. My experience corresponds to what has been shown this afternoon—that is, that the seasonal cases are improved but the cases that last throughout the year get very little improvement.

As to the treatment of asthma in previous years, the cases of bronchial asthma were relieved at the time of the asthmatic seizure by some opiate, chiefly Dover's powder or morphine. Of course, smoke of various powders containing stramonium and the like gave some relief. Then a prolonged treatment with potassium iodide seemed to be of benefit in many cases. That it completely cured them I wouldn't say, but it got them over the attack of bronchitis and relieved them for a considerable period.

There is one observation that has not been referred to here, and that is that different members of the same family will show different types of sensitization. I have in mind one family in which the father has persistent attacks of bronchitis accompanied by attacks of asthma, which is not very well developed, however. The oldest child as an infant was very sensitive to cow's milk. The mother's milk gave out soon after its birth, and one thing after another was tried until it was put on human milk—a wet nurse was employed, and then the child gained progressively. The next child showed a little sensitization to milk and developed eczema very early in life. The third child was very sensitive to egg, suffered from eczema, and a moderate degree of bronchial asthma; so that there you have in four members of one family asthma in two, eczema in two, intolerance of milk in one, intolerance of egg in one—a familial manifestation which is at least interesting.

DR. G. A. BANCROFT, Natick: It seems to me asthmatic conditions may be of hay-fever origin, and of bacterial origin, and of dietetic origin. With the cases of hay-fever origin I have

almost always found marked relief from the use of the pollen extracts as used by Dr. Goodale's instructions. He has detected the particular pollen extract, and in those cases of recent origin the asthma has subsided very satisfactorily, and as the patients have followed up the work, the relief seems to become permanent. I saw a man this morning, 50 years old, who has had hay-fever for years with marked asthma. He has had the pollen extract for years; and I asked him if he was going to begin it again, and he said he was so well he was not going to try it. "Last year I was better and this year I expect to be well," he said.

Then the bacterial cases: When seeking diligently for the toxin I have found that the autogenous vaccines have given some relief. In some cases they have seemed specific in their influence. One extremely interesting case: After a long hunt for the focus—the patient had an unusual amount of bridge work—we sought every source without avail, and finally removed part of the bridge work and found there the offending member apparently; and a vaccine made from that was followed by very marked relief.

As an example of the dietetic type of asthma—and I should like to have Dr. Walker's idea about it: A young schoolboy who was getting home from school Friday was followed Saturday by asthma, and a careful inquiry into his habits of eating showed that he was in the habit of eating apples very freely as soon as he reached home, and the only treatment I gave was to have him give up apples, which he adopted for six months, and he was free from asthma in any form whatever. At the end of that time he was suspicious that I was wrong in my opinion, for he was having a hard asthmatic attack. I asked him if he had any fruit that day, and sure enough, he had eaten fruit, which was followed by asthma. A few months later he ate some cooked apples, with the same type of asthma following. Now he is going without the fruit.

I have come to appreciate the work that the men are doing in this branch of research, for I think the people are benefiting by it more than by almost any other branch.

DR. H. T. BALDWIN, Chestnut Hill: All these cases that have been given are in the line of protein. How much work has there been done to determine if it is possible that there is any

chemical cause similar to the absorption of proteins? Very recently I have had a case of very obstinate asthma which is very clearly susceptible to aspirin and which has been tested by Dr. Goodale and some others for protein anaphylactic reaction without any satisfactory results. This seems to me to be a chemical action. One five-grain tablet of aspirin I myself have seen produce asthma in this case. His feeling was that it would cause asthma, but I gave it to him one day, and within half an hour he vomited; he had not vomited before; had coryza and rhinitis and definite asthmatic symptoms with râles all over his lungs. By the end of the day the attack was subsiding, and the next day he was all right. I do not know whether any work has been done on that line or not.

Another thing which occurred to me was how to explain the action of adrenalin chloride, which works very well in these cases. Is it explained from the anaphylactic viewpoint? One patient I have seen recently who has proved very clearly since I gave her the adrenalin chloride that her asthma was caused by dogs. While I was persuading her to go through the skin tests—it took some time—I gave her several doses of adrenalin chloride, which gave her relief from her asthma in two minutes. Finally, she was persuaded to have skin tests from the two dogs which she owned, which proved clearly to be the cause, and we sent the dogs away, and ever since they have been gone she has had no attacks, whereas before she was having two or three attacks a week. By the way, when I gave that patient adrenalin chloride, I thought I would try her blood pressure; it was 168, and I gave her ten minims of a one to ten thousand solution of adrenalin chloride subcutaneously. Immediately after her symptoms subsided her blood pressure was 150, which was contrary to what I expected from the adrenalin chloride. I don't know how to explain that action of the adrenalin.

DR. F. R. STUBBS, Newton: I have very little to add. The modern treatment, so-called, is certainly a very expensive process for your patients. If we could only guarantee for them absolute cure, there would be no question about it, but several of the patients who have been through the hands of you gentlemen here have experienced very little relief and have spent money into the hundreds of dollars.

Now I think that these studies are extremely important, and they are certainly going to lead

somewhere. By the studies that have been made we found out that removing our patients as we did in the old days, some two or three blocks, or up a hill, that that was really removing them from a stable or dogs or cats or oaks or some other of these offenders. I wish before the experiments are concluded that the men who are working will try to imitate what is actually taking place in nature and see what happens to ragweed pollen when a frost takes place. I myself am a victim of asthma due to ragweed. I get definite reactions from ragweed subcutaneous injections and absolutely no relief from injections of the extract taken from the first of May one year right through to the first of September. But last year on Cape Cod, we had a frost on the tenth day of September, which was unprofitable for the cranberry crop, but splendid for the hay-fever victims. The next day I had to see a patient in Pomfret, Conn., and rode from Cape Cod to Pomfret, Conn., with absolutely no symptoms, with perfect ease and no return of the hay-fever.

It seems to me if these remedies can be applied through inhalation, or if some process which, like the frost, destroys the action of the pollen, can be applied to the patient's sensitive mucous membranes in the nose, that then we are going to get somewhere. Until that time, I think that the remedies so far offered are by no means certain; and they are very expensive.

DR. F. H. ALLEN, Holyoke: I would like to ask Dr. Walker what fruits he found produced hay-fever and asthma.

DR. I. C. WALKER: We found that apples frequently caused asthma, and peaches occasionally. If the peach is peeled and the skin is thrown away, the patient can eat the pulp. Probably it is the fuzz on the peach skin. A case similar to that is willow. We have seen a case of the willow, which was not sensitized to the pollen of the willow, but was sensitized to the fuzz under the willow leaf; and treatment with that was followed by relief. The patient's house was surrounded by willow trees.

QUESTION: Can you eat them if they are cooked?

DR. I. C. WALKER: Yes, you can eat them if they are cooked.

A LADY: I am a hay-fever victim and can't eat melon or cantaloupe without getting very severe reactions of hay-fever, really more severe

than from the ragweed, and I am very sensitive to the latter.

ONE OF THE AUDIENCE: I would like to ask Dr. Walker if he can give any information to the general practitioner if there is any relation between general tuberculosis and asthma, and whether there is some means whereby we can tell whether our patient is tuberculous or asthmatic when we first see him. It is almost impossible to tell whether the patient is tuberculous or asthmatic, and if the two come together it presents really a very pitiable subject.

DR. I. C. WALKER: True bronchial asthma does not run fever, and in over 400 cases we have seen, about 500 now, we have encountered only three cases of tuberculosis. I can't imagine a case of outspoken bronchial asthma simulating tuberculosis. The kind which we would like to call asthmatic bronchitis that has a cough all the time, that has bronchitis for two or three or four years, and finally develops asthmatic symptoms, wheezing and coughing in the night and shortness of breath and lots of expectoration *should not be* called true bronchial asthma. There isn't spasm of the bronchi. True bronchial asthma is a spasm of the smooth muscles of the bronchi; that is why adrenalin relieves—it paralyzes the nerve endings so that the smooth muscle distends and gets back to its normal caliber. The cases of asthmatic bronchitis are the ones that are relieved to a certain extent by expectorants and morphine. Morphine is a constrictor. The alkaloids of opium are divided into two groups—the papaverine group and the morphine group. The morphine group is a constrictor, while the papaverine group is a dilator; so that morphine should not act on the smooth muscles of the bronchi; whatever action it has is a quieting effect on the patient, but adrenalin and papaverine are dilators.

Book Reviews.

Oral Sepsis in Its Relationship to Systemic Disease. By WILLIAM W. DUKE, M.D., Ph.B. St. Louis: C. V. Mosby Company. 1918.

This volume explains in a brief and clear manner the relationship which frequently exists between systemic disorders and infections of the gum or alveolar process. Problems of bacteriology, immunology, and pathology, as well as dentistry, are discussed. The various ways in which oral sepsis may affect health—chronic inflammatory lesion, toxic ef-

fects, and local pain, referred pain, or headache—are considered. The facts set forth in this volume show that dental sepsis is an extremely common condition, and that it can cause serious disorder in many different ways. One hundred and seventy roentgenograms illustrate various conditions, methods of treatment, and results.

The Destiny of the American Surgical Association. By J. EWING MEARS, M.D., LL.D. Philadelphia: William J. Dorman. 1917.

"The Destiny of the American Surgical Association" is a small book recording briefly the history and purpose of the Association. Its founder, Professor Samuel D. Gross, was a distinguished member of the American Medical Association and had participated especially in the work of the Surgical Section. Believing that an independent body of surgeons would further develop and stimulate this work, he organized the American Surgical Association. The Association is national in character, thus bringing to its meetings and including in the pages of its volumes of "Transactions" the surgical work characteristic of the different portions of the country. During the thirty-seven years of its existence, the Association has effectively elucidated many of the great principles of surgical science, and has gathered into its circle of Fellowship the ablest members of the profession in Europe and America.

The Practical Medicine Series. Volume 1: General Medicine. Edited by FRANK BILLINGS, M.S., M.D. Volume II: General Surgery. Edited by ALBERT J. OCHSNER, M.D., F.R.M.S., LL.D., F.A.C.S. Chicago: The Year Book Publishers. 1918.

These volumes are the first two of a series of eight, covering the entire field of literature of medicine and surgery during the year 1917. This series is published primarily for the general practitioner, but the arrangement in several volumes enables those interested in special subjects to obtain easily information in the field in which they are particularly interested.

Volume I deals with the general aspects of medicine. Infectious diseases, diseases of the chest, bronchi, lungs and pleura, of the heart and blood vessels, of the blood and blood making organs, of the ductless glands, metabolism, the kidneys, stomach and intestines, liver and gall-bladder are considered.

Volume II contains a review of the literature for the past year on general surgery. It includes many articles on various aspects of military surgery. The large proportion of articles on abdominal surgery show that the position of this branch is a commanding one at the present time. Both volumes are illustrated and are of great practical value to the general practitioner.

Publications of the Red Cross Institute for Crippled and Disabled Men. Edited by DOUGLAS C. MCMURTRIE. No. 14, Series 1.

The Red Cross Institute for Crippled and Disabled Men has issued Numbers 12, 13, and 14, of Series 1, dealing with war cripples in Italy, Germany, and France.

"*Provision for Vocational Reëducation of Disabled Soldiers in France.*" Number 14, Series 1, describes the steps taken by the French Government in creating national schools of reëducation. Existing trade schools were investigated and utilized as far as possible for reëducational purposes. At first, the majority of schools had no connection with military hospitals and received only discharged soldiers; but in 1916 the Government became convinced that vocational reëducation should be started before discharge. Schools were organized, therefore, in connection with the large physiotherapeutic hospitals and amputation depots throughout the country. In order to secure coördination, the Ministers of War, Labor, and the Interior created a National Office, to supervise the work of reëducation all over the country. All disabled men have been registered. Investigation has been carried out among employers and schools. Centers of readaptation have been formed which comprise hospitals of physiotherapy where the invalided soldier receives his functional reëducation and finishes his treatment, institutions of prosthetic equipment where artificial limbs are made and distributed, and schools of reëducation where there is provided agricultural, commercial, or trade training.

In France, almost all of the schools are boarding-schools, and comprise workshops, classrooms, dormitories, and dining-halls. The comparatively few day schools are chiefly guild schools. A further method of furnishing instruction consists in placing men as apprentices in private shops. Before men are recommended for discharge, they are supported by the Ministry of War. In many schools, wages are paid; in others, the products are sold and the proceeds are divided among the workmen. Among the trades taught are included shoe-making, printing, locksmithing, metal-turning, upholstery, wireless telegraphy, and the making of brushes, chairs, clocks, toys, and paper-boxes. Courses are also given in bookkeeping, stenography, typewriting, and industrial design. The importance of agricultural training is especially recognized. The length of the courses varies from about two to eight months. Prosthetic appliances are provided by the government, and placement is secured either through the National Office or public and private employment bureaus.

In the Appendix of this pamphlet are printed laws concerning the reëducation of disabled soldiers, and a list of reëducational schools.

Scopolamine-Morphine—Semi-Narcosis During Labor. By WM. OSBORNE GREENWOOD, M.D., B.S. London: Henry Frowde, Hodder and Stoughton. 1918.

The use of scopolamine-morphine has been both favorably criticized and condemned by various members of the profession. The author of "*Scopolamine-Morphine—Semi-Narcosis During Labor.*" believing that no amount of criticism can negative the excellent results which have been obtained by this treatment, offers in this book a description of his technic and a record of the results of his experience. The chemistry and action of the drug are described, together with its effect upon mother and child. In regard to the mother, observation has led to the conclusion that voluntary contractions of abdominal muscles are not weakened and that post-partum hemorrhage is not increased by the use of scopolamine-morphine. On the other hand, the after-effects of its use show a remarkable absence of shock and exhaustion. In regard to the infant, the author believes that where reasonable care is exercised, the risks involved are no greater than in ordinary practice. He believes, also, that by reducing the fear of pain among women, the serious decline in birth-rate which the nation is facing might be remedied. Whatever opinion one may hold in regard to the use of scopolamine-morphine, this book offers a good exposition of its use.

Applied Bacteriology. Edited by C. H. BROWNING, M.D., D.P.H. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E.C. 1918.

This volume is a collection of studies and reviews of practical value to those interested in the laboratory, the clinical, and the administrative aspects of medicine. The problem of diagnosis in intestinal infections, or "enterica," by bacteriological and serologic methods, is comprehensively discussed. The importance of differential diagnosis within the "enterica" group and of the Widal reaction is considered. A short but significant series of observations on immunity reactions in the typhoid-coli group is included, and in order to point out the dangers of indiscriminate generalizations in this field, a general review of the chemistry of antibody reactions has been added. A detailed account is given of the use of differential antisepsis for the isolation of small numbers of pathogenic organisms from mixtures of similar bacteria, especially the recovery of typhoid-paratyphoid bacilli from feces. Other observations deal with the use of calibrated pipettes in serological work, the diphtheria group, with special reference to the recognition of pathogenic members, antisepsis, the isolation of B.

diphtheriae by means of a simple medium containing telluric acid, the selective actions of thallium acetate and thorium nitrate, the use of ultra-violet radiation, and tetanus.

Interpretation of Dental and Maxillary Roentgenograms. By ROBERT H. IVY, M.D., D.D.S. St. Louis: C. V. Mosby Company. 1918.

This book offers to the medical and dental professions the data necessary for correctly diagnosing pathologic conditions about the teeth and jaw bones with the roentgen ray as an aid. The interpretation of roentgenograms, rather than the making of them, is considered, and references to technic are limited to special points involved in examination. The 259 roentgenograms included in this volume are negative reproductions, bone and hard tissues being light, and soft tissues and spaces dark, so that natural conditions may be studied more readily here than in the original negatives. In many of the odontograms showing periapical pathology, the author has been able to compare the pictures with the conditions found at operation. The normal anatomy and histology of the teeth and jaw bones, together with anatomic variations, the appearance that the roentgen ray should impart to plates and films after passage through such normal tissues and anatomic variations, dental pathology both from the clinical side and the histopathologic side, and the various abnormalities produced in the roentgenogram by disease are the most important points considered in the interpretation of odontograms.

Aids to Rational Therapeutics. By RALPH W. LEFTWICH, M.D., C.M., M.R.C.B. New York: William Wood and Company. 1918.

"Aids to Rational Therapeutics" is a complete study, uniquely arranged, dealing with therapeutic treatment of disease. This book is particularly valuable because of the systematic and rational method of grouping. Diseases which are of allied pathology and which require a common treatment are grouped together. The author has formulated forty groups and has added separately those which could not be classified in this manner. Treatment which may be applied to the whole group is supplemented by that which is special to each member. This method of teaching therapeutics enables the student to acquire a knowledge of the subject in a much shorter time than in the older method of learning each disease separately, and it gives a broader and new outlook to the practitioner. Symptoms, methods, and doses have been grouped. In regard to therapeutics in general, the sections dealing with Automatic Habit, the Hyperemic Group, and Insanity are of particular interest. The author emphasizes especially the benefit

which may be derived from breaking habits. A section is devoted to doses and pharmacopoeial equivalents.

Waverley Researches in the Pathology of the Feeble-Minded. Vol. XIV, No. 11, May, 1918. Edited by WALTER FERNALD, M.D., A.M., and E. E. SOUTHARD, M.D., Se.D.

This volume of the "Waverley Researches in the Pathology of the Feeble-Minded" presents a series of studies of brain anatomy. The first article deals with the general aspects of brain anatomy of feeble-mindedness. The second section gives a description of ten instances of feeble-mindedness of various grades, together with autopsy and microscopic findings. Article 3 attempts to correlate the brain anatomy and histology with clinical and especially with psychometric findings. These studies have not been made for the sake of eugenic, economic, or social interests. The following provisional conclusions have been made: (1) In the attempt to measure mental capacity by brain complexity, it has been found that brains of least complexity are correlated with minds of least range. (2) The number of cases of feeble-mindedness for which infection is responsible is much larger than has been supposed. (3) The question has been raised of the relation between occasional bursts of excitability and alterations of intracranial pressure with the production of hydrocephalus. There are included in this volume twenty full-page plates, illustrating the cases of feeble-mindedness considered.

Diseases of the Throat, Nose, and Ear. By WILLIAM LAMB, M.D., C.M., M.R.C.P. Fourth Edition. New York: William Wood and Company. 1918.

This volume, "Diseases of the Throat, Nose, and Ear," has been written as a practical guide for senior students and junior practitioners. The appearance of the fourth edition gives evidence of its usefulness. Few additions have been made to the text, but eighteen pages of new material have been added, dealing chiefly with certain risks attending the tonsil and adenoid operation, an amplified description of the submucous resection of the septum, and an illustrated description of the intranasal treatment of fronto-ethmoidal suppuration. In the aural section, vestibular symptoms, the treatment of epidermal and mixed accumulations in the meatus, and the genesis and means of prevention of otorrhea are discussed. The author emphasizes the importance of mastering the methods of examination and of acquiring facility in the use of reflected light. This book furnishes a practical survey of diseases of the ear, nose, and throat and methods of treatment. One section is devoted to selected formulae.

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INDUSTRIAL AND OBSCURE LEAD POISONING.

LEAD poisoning, with its diverse symptoms and causes, is always a complex study. The whole subject presents a series of phenomena which it is sometimes peculiarly difficult to co-ordinate. This difficulty, which exists at all times, has been increased of late by conditions that have grown directly out of the war. An enormous use of lead salts and drying materials has been made in connection with industries which are essential in preparing nations and armies for war—in the manufacture of airplanes, motor cars, ships, and shells. From such a diversity of industries and workers it is difficult to present a clear and distinct picture of a complex effect such as lead poisoning. This fact may explain the unwelcome truth that many cases go unrecognized. Among instances of this kind we may regard some of

the cases which are often, and wrongly, called "ptomaine poisoning." Not a few of these, if studied more attentively, exhibit a startling resemblance to plumbism, especially in its nervous and ocular forms. When a case of poisoning begins to show these characteristics, the cause must be sought more deeply. It is our opinion, based upon inquiries and personal experience, that today many cases classified as food or milk poisoning admit of a more precise definition as lead poisoning, while they also show the need for some exhaustive testing by the expert who would scientifically differentiate them. The records of medical jurisprudence and of clinical experience contain striking examples of poisoning after the eating of canned meats, vegetables, fruits, and milk, which might have been found by exact tests and analysis to be the accumulated effects of small doses of lead continually absorbed.

Lead poisoning must be considered in its relations to work and habits of eating and drinking, upon which depend so essentially the health, well-being, and efficiency of the employed. The conception of lead poisoning presupposes a defective system of hygiene and factory inspection, both private and official. Notwithstanding all that has been written on the subject, it is necessary to repeat that employers and workmen must be taught that bad habits of eating and drinking, bad customs of rest as well as of work, lower the product of industry because they lower the standard of the man as a healthy being. This truth is particularly well illustrated in the ways by which lead poisoning arises. According to Sir Thomas Oliver, the symptoms of lead poisoning, whether caused by working in lead, inhaling dust, or drinking water contaminated with lead, are due: (1) to lead compounds circulating in the blood; (2) the formation and retention of toxic products within the system, causing deranged function of the excretory organs; and (3) to structural changes of internal organs which are a consequence of the action of lead.

It is interesting to note at this point the conflicting views of pharmacologists and experts on clinical medicine. While Cushing says, "The effects of the sudden absorption of lead in man are unknown," Sir Thomas Oliver observes that, beyond question, "lead salts are all more or less poisonous. Even so insoluble a salt as the sulphate is acted upon by the in-

testinal juices, and is more or less soluble." Following this line of reasoning, many authors have classified lead salts according to their solubility in gastric juice, or in dilute hydrochloric acid. This is a step in advance, for up to recent years it has been held that there is an essential difference between soluble and insoluble lead salts as regards their toxicity; but owing to later researches the distinction has broken down. The distinction was never of much value. In practice, a salt which becomes soluble in the body juices is assimilated like a soluble salt, and in the last resort the alleged difference between lead salts fades away.

It is now realized that large doses of lead, for example, of lead acetate, may sometimes be poisonous, that is to say, a considerable portion may be absorbed. Such cases may not be common, but they do occur, and instances are alleged by Weyl, Rambousek, and E. Leymann. These writers insist that the mode of administration is a secondary matter, and that lead salts, whether inhaled, absorbed through the skin, or swallowed, are always taken into the body via the alimentary tract. Sir Thomas Oliver takes this view: "Admitting that the lungs and the respiratory passages are frequent channels of entrance of lead into the system, I am of the opinion that it is by the alimentary canal, even when lead has primarily reached the upper part of the respiratory passages, that most of the poison enters the body." What actually happens to workmen employed in lead factories is that most of the lead dust is caught on the teeth and in the mouth and only a small part reaches the lungs.

Such a conclusion as this obviously affords a means of disentangling some of the confusing factors in lead poisoning. It leads to a very simple explanation of the poisonous action of such compounds as lead oxide, and to a very simple interpretation of the complicated puzzle of poisoning after insoluble salts. Lead oxide, as Alice Hamilton points out, forms a fine, dry, penetrating dust. Such a dust, write Legge and Goadby (*Lead Poisoning and Lead Absorption*, p. 98) "circulating in the air is many times more dangerous than lead actually swallowed." The reason seems to be that the frequently repeated entrance of small quantities of lead into the system is more likely to produce poisoning than one or two large doses

when swallowed. Legge and Goadby based their conclusion upon animal experiments, but these results are not recent enough to explain very fully or clearly the present position of the problem.

This problem is that lead poisoning is a subtle and prevalent form of poisoning, and that its precise origin is often obscure, although it is now clear that any salt of lead may in favorable circumstances produce acute and chronic symptoms. Animals have been poisoned by licking pails which contained white lead paint. An instance is given in *The Journal of the American Veterinary Association*, 1918, p. 706. Professor Lereboullet in a recent article on "les deux saturnins" (*Revue gen. de clinique et de ther.*, 1917, p. 611) shows that the barriers between the soluble and insoluble salts, between acute and chronic poisoning, have broken down, though the antinomy between experiment and practice still remains. Craik (*British Medical Journal*, 1917, ii, p. 650) found punctate basophilia after the exhibition of lead acetate for diarrhea "after the manner of an older generation." In one of Professor Lereboullet's cases, the patient, a worker in a factory of electric accumulators, presented a polyneuritis, abolition of reflexes, lymphocytosis, albumosis, with a certain degree of hypertension, or a saturnine meningitis. It is also reported from German sources that lead poisoning has suddenly developed after a bullet wound. In such cases, it is believed, insoluble salts of lead have been dissolved by some unknown agency and rendered poisonous. In one case the lead was dissolved by a dose of potassium iodide, and the amount thus set free was sufficient to cause death.

From recent reports it may be assumed that the effects of the sudden absorption of lead are more common than has hitherto been believed. Owing to the increased consumption of tinned meats, fruits and vegetables during the war, cases of acute and chronic poisoning have been accumulating, and these supply definite corroboration of the impression that lead salts are responsible for many obscure cases, which have escaped notice largely because there has been a prepossession that insoluble lead salts are not in themselves in any causal nexus. It seems necessary to revise what has hitherto been accepted and believed about lead.

VOLUNTEER MEDICAL SERVICE CORPS.

IN last week's issue of the JOURNAL, too late for editorial comment, we published an important communication from Dr. Franklin Martin, relative to the contemplated extension of the Volunteer Medical Service Corps to include all qualified physicians not already commissioned in the Medical Reserve Corps of the United States Army, Navy, or Public Health Service. This plan is apparently intended, by what amounts to a universal voluntary enrollment, to segregate the medical profession from the operation of the contemplated extended draft of men between eighteen and forty-five. Though the principle of selective service, as it has been applied by the draft during the present war, is entirely free from the stigma of distinction between volunteers and conscripts, it is, nevertheless, highly desirable that medicine, as one of the most liberal professions, should make its entire service in this national emergency without any suggestion of compulsion. Physicians who have not already entered the Medical Reserve Corps have refrained from worthy motives, but there is none who is not ready to pledge his all and utmost wherever necessity of service to his country may exist. The Volunteer Medical Service Corps is to be an expression and record of this pledge on the part of every qualified physician in the United States. It is to be hoped and expected that every physician, by joining this corps promptly, not only will give evidence of his own patriotism, but will thereby uphold and maintain the free dignity of the profession which he has the honor to serve.

ENROLLMENT OF PHYSICIANS.

ON August 8 the following statement was authorized by the War Department, signed by Newton D. Baker, Secretary of War:

"The War Department today has suspended further volunteering and the receipt of candidates for officers' training camps from civil life. This suspension will remain in force until the legislation now pending before the Congress with regard to draft ages is disposed of and suitable regulations drawn up to cover the operation of the selective system under the new law. . . "

Fearing that this order might be misinterpreted by doctors who would not distinguish between enlistment as a private soldier and

enrollment as an officer in the Medical Reserve Corps, on August 9 the Secretary of War was asked to issue a statement making clear this point.

In response to this request on August 10, the following statement was authorized by the War and Navy Departments:

"Orders issued by the War and Navy Departments on August 8 suspending further volunteering and the receipt of candidates for officers' training camps from civil life do not apply to the enrollment of physicians in the Medical Reserve Corps of the Army and the Reserve Force of the Navy. It is the desire of both departments that the enrollment of physicians should continue as actively as before so that the needs of both services may be effectively met.

(Signed)

JOSEPHUS DANIELS,
Secretary of the Navy.
NEWTON D. BAKER,
Secretary of War."

(Signed)

It is desirable that the definite attention of the medical profession be called to this interpretation in order that enrollment for the Medical Reserve Corps of the Army and the Reserve Force of the Navy, which is going on so rapidly at the present time, shall not be interrupted.

MEDICAL NOTES.

THE HEALTH OFFICER AND THE BIG FIGHT.—

It is said to take nine men working "over here" to keep one soldier fighting "over there." Clearly, therefore, it is wise to keep the nine workers healthy and working as well as the one soldier.

Which health officer should stay at home and who should go to war? How is the nation bearing up under the war-strain? What are the special war-time health menaces of the civil population, and what are we going to do about them? What headway are we making against the venereal diseases? These are the questions to be considered at the convention of United States and Canadian sanitarians at Chicago, October 14-17, to be held under the auspices of the American Public Health Association. Some of the military sanitarians who will address the meetings are Surgeon-General Gorgas, Colonel Victor C. Vaughan, and Major William H. Welch of the Army Medical Corps. Other speakers at the general sessions will be George H. Vincent, president of the Rockefeller Foundation; Dr. Charles J. Hastings, president of

the American Public Health Association; Dr. W. A. Evans, Assistant Surgeon-General Allan J. McLaughlin, U.S.P.H.S., Dr. Ernest S. Bishop, Dr. Lee K. Frankel, Dr. Frederick L. Hoffman and others.

There will also be papers upon laboratory, industrial hygiene, vital statistics, food and drugs, sanitary engineering, sociological, and general health administration subjects.

As the health of the civil population has a direct bearing upon the winning of the war, mayors and governors are being requested to send their health officers to the conference in spite of the present high cost of government.

The final program will appear in the *American Journal of Public Health* appearing September 25. For further information write to A. W. Hedrich, Secretary, American Public Health Association, 1041 Boylston Street, Boston.

VENEREAL DISEASES AND INDUSTRY.—The July number of "The Common Health," issued by the Massachusetts State Department of Health, contains an important article dealing with venereal disease and industry. In European armies, this plague has often been responsible for more inefficiency than engines of war. Confronted with the problem, the United States has developed a remedy which has resulted in the lowest venereal disease rate in the Army in history.

It must be thoroughly recognized, however, that civilian disability is as serious a menace as military. An industrial program has been drawn up, and employers have been urged to coöperate in making it a success. The plan advocates distribution of literature, confidential interviews between employees and superintendent, examination by competent physicians, investigation of cases for treatment, provision for leave of absence, with pay for employees in the infectious stage, and regular examinations even after the patient has been pronounced cured. Placards are to be posted and booklets containing reliable information distributed. Moving-picture films, lectures, and follow-up methods will also be used. The program meets two fundamental reasons for the prevalence of syphilis and gonorrhea—ignorance and lack of proper treatment.

This bulletin contains, also, an interesting discussion of industrial nursing in Massachusetts. Approximately 125 factories and stores

in Massachusetts have established some form of nursing service. This means economy for the employer, because it reduces absences due to illness, decreases accidents, and results in a larger output of goods. For the community, this service means prevention of illness in the home, for patients receive treatment before they become seriously ill. Large manufacturing plants usually require a full-time nurse. For the small firm, there are available the two following forms of service, supervised by the local Visiting Nurse Association: (1) the group service, whereby adjacent plants share the time and expense of one nurse, and (2) hourly service, in which one nurse spends one hour or more daily in one or more plants. The success of industrial nursing depends chiefly upon the personality of the nurse and her ability to do preventive work.

LONDON MORTALITY STATISTICS FOR MAY, 1918.—Statistics recently published show that the total death rate of London for May, 1918, reached a total of 13.7 per thousand inhabitants living. In the various districts and boroughs, the highest rate was 19.8, in Southwark; the lowest rate was 9.5, in Hampstead.

WAR NOTES.

MASSACHUSETTS PHYSICIAN WINS WAR CROSS.—Probably the first Massachusetts physician to receive the *croix de guerre* is Lieutenant Max P. Cowett, of Chicopee Falls, formerly an interne and house physician at Bellevue Hospital, New York. He was honored by the French Government in recognition of heroic work in the trenches. Lieutenant Cowett was graduated from Bellevue Medical College in 1915 and entered the national service in May, 1917.

DR. FALVEY JOINS MEDICAL RESERVE CORPS.—Dr. Humphrey J. Falvey, of Worcester, Mass., has been commissioned a first lieutenant in the Medical Reserve Corps and has been ordered to report to Fort Oglethorpe, Ga. He is a graduate of the Baltimore Medical School. It was chiefly through the efforts of Dr. Falvey that the city of Worcester secured night ambulance service.

WAR RELIEF FUNDS.—On August 20, the totals of the principal New England War Relief funds reached the following amounts:

Belgian fund	\$655,582.73
French Wounded fund	389,518.33
British Imperial fund	118,590.87

HAVERHILL PHYSICIAN GRANTED COMMISSION.—Dr. Frank H. Coffin, the ninth Haverhill physician to enlist for military service, has been commissioned first lieutenant in the Medical Reserve Corps. He will report at a base hospital at Hoboken, N. J. Lieutenant Coffin graduated from Boston University Medical School in 1900, and has since served as interne for a year at the Lowell General Hospital, as a member of the Hale Hospital staff, and as school physician.

SLIGHT PNEUMONIA INCREASE IN THE ARMY.—There was a slight increase in the number of pneumonia cases among the troops in the United States during the seven-day period ending Aug. 9.

Admission and noneffective rates generally in all camps increased slightly, but deaths from disease still were at the annual rate of 3.18 per thousand.

DEATH OF MAJOR BEAL.—Major Howard W. Beal, whose death in France is reported from Washington, was personally thanked by Queen Mary of England for the excellent war work he did at the American Women's Hospital in Paignton, England. The British Government highly regarded his services as a surgeon.

Dr. Beal gave up his practice in Worcester early in the war and sailed on the first Red Cross ship from this country. He returned here early in 1915 broken in health because of his war work abroad, but crossed to Europe again when the United States entered the war.

He was consulting surgeon at the base hospital of the first division before being transferred to a place near Montdidier, France, where he received wounds that resulted in his death. He graduated from Andover and Harvard Medical School.

BOSTON CITY HOSPITAL UNIT.—The Boston City Hospital medical unit is now in the war zone. The unit has established its battle relief station and is ministering to wounded and sick soldiers.

Boston's latest contribution to the organized relief work with the overseas armies is made up

mainly of doctors and nurses from the staff of Boston City Hospital. It went across as a much more elaborate organization than the original plans contemplated, and it was recruited to the augmented strength from other Greater Boston hospitals.

Officially it is Red Cross Base Hospital Unit No. 7. It will carry through all its work, however, the popular designation "Boston City Hospital Unit." It is commanded by Maj. John J. Dowling, superintendent of the City Hospital. Maj. Edward H. Nichols is chief of surgical service and Maj. John Jenks Thomas chief of medical service. The nurses are headed by Miss Emma M. Nichols, superintendent of nurses at the City Hospital.

The unit takes up its tasks as a compact organization, drilled to the utmost military efficiency by weeks of training at Camp Devens and later at New York. It was organized early in the year and entered upon its training at Camp Devens early in April. The original personnel had 55 nurses from the City Hospital. This was augmented to 100 nurses, those from other hospitals being admitted to fill the ranks. The surgical and medical staffs, numbering many of Boston's leading doctors, were increased in numbers proportionately, as was also the enlisted force of orderlies, cooks, and clerks.

ONLY ABOUT ONE IN TWENTY OF WOUNDED SUCCUMB.—Of the American soldiers wounded in the Marne-Aisne offensive, probably less than one in twenty will die from their wounds, more than four-fifths will be returned to service, and only 14% will be discharged for disability, according to a statement of the chief of staff, based upon the officially attested experience of the Allies during the four years of war. The statement follows:

"In connection with the casualties among the American expeditionary forces in the Marne-Aisne offensive, it should be stated upon the basis of the officially attested experience of our associates during four years of this war that of wounded soldiers sent to hospitals for treatment, fewer than one in 20 die. Of all the soldiers sent to the hospital only 45 in every 1000 died. These include those who die of disease as well as those who die of wounds. Of all soldiers wounded in action more than four-fifths return to service, many of them in less than two months. It is necessary to discharge for physical disability only 14.5%.

These figures are based on an average of both British and French official figures, including both officers and men."

HOSPITAL SHIP TORPEDOED.—The torpedoing of the British hospital ship *Warilda* was one of the most harrowing disasters in the history of submarine warfare. The number of dead is variously estimated from 105 to 130 and upward, and includes several women nurses.

The ship carried 600 sick and wounded. Among them were seven Americans, two officers and five enlisted men, all of whom have been accounted for except one corporal. There were aboard 89 nurses and members of the voluntary aid department, and the crew comprised about 200 men.

More than 650 survivors were given first aid treatment, food and clothing. The patients were placed aboard special trains, which had been waiting to receive them, and sent to hospitals in various parts of the country.

Just over the dynamo was the wardroom, which contained more than 100 patients. Most of these were killed outright by the explosion and the others, many of whom had been freshly injured by the torpedo, found themselves trapped. It was impossible for outside aid to reach them, and all except a few who jumped overboard and were picked up, perished. This part of the ship quickly settled and water flooded the wardroom, drowning the men caged there.

All the soldiers and the nurses testify to the heroic efforts of the crew. Under the direction of the officers they went coolly and methodically about the difficult task of bringing the sick and wounded up on deck. As many as could be handled in this manner were placed in slings and lowered to the escorting destroyers. The morale of the wounded lying on deck waiting to be taken off was of the finest character. They neither complained nor urged the rescuers to hurry. The less seriously disabled assisted their more unfortunate mates to go first. The American Red Cross is making the survivors comfortable.

JAPANESE DOCTORS TO AID AMERICANS.—From the town of Tsuruga, Tokio, 40 trained medical workers, mostly Japanese, and including six physicians and 18 nurses, have been sent by Japan as a chapter of the American Red Cross at Vladivostok. There were no sailing accommodations on the steamer that carried them, and they slept on deck so as to avoid delay in their mission.

ALL DOCTORS IN CLASS 1 ORDERED IN SERVICE.—Massachusetts physicians and surgeons who are in the draft age and in Class 1 and have not already volunteered into the Army or Naval Reserve have been ordered into military service.

The registrants were inducted August 11, and are to report at Fort Sloan, N. Y., where they will be given special training. The men are to be taken regardless of whether they are physically fit for general or special service.

MASSACHUSETTS NEEDS 500 MORE NURSES TO FILL QUOTA.—Massachusetts still needs 500 young women to register for service in order to fill her quota for the United States Student Nurse Reserve.

It is hoped that this number may not only be reached, but exceeded, before the close of the drive, which officially ends on August 31, although the time for registration has been extended. The government agencies in Washington coöperating in the drive will await with eagerness the reports from the States, to learn if the full number required, 25,000, has been reached.

Miss Helen Wood, who is representing the Council of Defense at the Central Recruiting Station, at the Massachusetts General Hospital, states that over 1000 young women have applied to her personally for registration blanks, and the greater number of these have proven eligible, having had the necessary education and being of good health, the two main requirements. Application blanks are being issued from many other hospitals in the State, where full information may be obtained.

WAR HOSPITAL WANTED FOR BOSTON.—Use of the West Department of the Boston City Hospital, located in West Roxbury, has been offered to the War Department by Mayor Peters for New England wounded soldiers returning from France. This group of buildings, originally intended for children, can accommodate at present about 165 patients, but changes can be made so that there will be room for between 300 and 400 patients. The Mayor also urged that the Government accept the land adjacent to the hospital for the building of its New England hospital for sick, wounded, and convalescent men.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending August 17, the number of deaths reported was 193, against 173 last year, with a rate of 12.83, against 11.68 last year. There were 37 deaths under one year of age, against 47 last year.

The number of cases of principal reportable diseases were: diphtheria, 39; scarlet fever, 5; measles, 22; whooping cough, 38; typhoid fever, 4; tuberculosis, 56.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 1; typhoid fever, 1; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 1; whooping cough, 3; tuberculosis, 17.

Included in the above were the following non-residents: tuberculosis, 1.

ADAMS NERVINE ASYLUM.—The forty-first annual report of Adams Nervine Asylum records 216 patients under treatment during the year 1917. Of these, 9 were discharged as recovered, 101 relieved, 66 not relieved, 3 declining treatment, and there was 1 death. For financial reasons, the Men's House was closed in November. Work in the occupation room has been undertaken by 98 patients. There are now 16 pupils in the training school.

NEW ENGLAND NOTE.

\$2427 RAISED FOR PORTSMOUTH HOSPITAL.—Tag day of the Portsmouth (N. H.) Hospital on August 10, was the most successful of any held for years; \$2427 were collected.

Miscellany.

**MASSACHUSETTS STATE COMMITTEE,
COUNCIL OF NATIONAL DEFENSE,
MEDICAL SECTION.**

J. B. Blake, M.D., *Chairman.*

W. L. Burrage, M.D., *Secretary and Treasurer.*

In response to the postal card request for funds from physicians in Massachusetts who are not in Government Service, the Massachusetts State Committee, Council of National Defense, Medical Section, hereby acknowledges subscriptions from the following physicians, through August 21. The funds are for printing, postage, rent of typewriter and extra clerical assistance.

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DIETARY VALUE OF CORN AND WHEAT PRODUCTS.

THE Public Health Report issued for May 31, 1918, describes the growth-promoting properties of foods derived from corn and wheat. An investigation has been carried out to determine whether corn and wheat products used in human nutrition exhibit similar dietary deficiencies as those of the whole grains. It has been found that the "highly milled" products are inferior in dietary value to foods prepared from the whole grain. Experiments with "war bread" indicate that persons with delicate digestion are subject to temporary digestive disturbances as a result of a change from "white" bread to bread containing a considerable percentage of bran. "White" bread is not adequate for maintaining normal growth, for it is deficient in antineuritic fat-soluble vitamine, and in protein and inorganic salts. A wheat flour, containing considerable part of the germ and superficial layers of the grain, supports the growth of mice and pigeons especially well when supplemented with inorganic salts. "Highly milled" corn grits is a failure as the exclusive food of young hogs; the whole corn kernel, however, supplemented by inorganic salts, promotes growth. No evidence of a toxic action of a whole wheat diet was obtained in the experiments on squabs which were fed on whole wheat meal, supplemented by a suitable salt mixture. The investigation shows that "whole wheat" flour, or old-fashioned corn meal, contains more dietary value than "white" and "highly milled" corn foods.

The United States Public Health Report issued for June 7, 1918, contains an article showing the results of an investigation of the vitamine content of corn and wheat products

It has been demonstrated that the vitamins are not distributed evenly throughout the corn and wheat kernels, and there is very little vitamin in the starchy part of these cereals, although the bran germ portions of the grain contain a considerable amount of these substances. These results were obtained by experimenting on fowls and noting the time necessary for the appearance of polyneuritic symptoms. By experimenting on mice and squabs, information was obtained concerning the fat-soluble vitamin; the germ contains most of the fat, as well as the fat-soluble vitamin in the grain.

The object of the investigation described in this report was to correlate the phosphorus content of corn and wheat foods with their content in anti-neuritic and fat-soluble vitamin. Special emphasis was placed on the distribution of phosphorus in the various products obtained from modern corn and flour mills. The phosphoric anhydride content indicates that the product is poor in vitamins.

DUTY OF PHYSICIANS WITH RESPECT TO ABORTIONS AND HOMICIDES.*

THE Chief Medical Examiner calls attention to a matter of grave importance in the medico-legal and criminal investigation of cases of abortion and suspected abortion, dying in city and private hospitals, and more especially in the various private sanatoria in the City of New York. The attending gynecologists and surgeons and their respective staffs of internes appear to be singularly unaware of their responsibility to the prosecuting authorities (the district attorneys of the counties and the medical examiner's office, in regard to the preservation of the pathological material of such abortions, namely, the curettings and, in some cases, the uterus removed by hysterectomy. The Chief Medical Examiner is certain that if the attention of the medical profession is called to this subject that there will be a prompt amelioration of the deplorable situation.

This neglect on the part of the medical profession appears to be due to the fact that in none of the medical schools of the country are the students adequately instructed as to the responsibilities of the medical profession to the

prosecuting attorneys in regard to homicides and cases of manslaughter. Since many of the large city and private hospitals have at the present time a more or less well-organized pathological department, a demand upon these laboratories for the proper preservation and recording of such pathological material which passes through their hands would seem reasonable. In the case of hospitals which are not sufficiently endowed to have laboratories, a request for the proper preservation (in 10% formalin) of such material, in containers of sufficient capacity, would seem not unreasonable. Attention is called to the fact that neglect to preserve such material renders physicians *participes criminis* in any action which the district attorney of the county may deem necessary. In view of the importance of the matter, there is no good reason why remissness should not be punished.

The Chief Medical Examiner also points out the frequent failure on the part of surgeons, to preserve and identify properly bullets or pieces of bullets removed by them at operation from the subjects of homicidal attacks.

In passing, we call our readers' attention to the provisions of Section 31 of the Sanitary Code, which requires physicians to file with the Department of Health, a certificate of death in all cases of stillbirths.

RECENT DEATHS.

FREDERICK HENRY CLEAVES, M.D., died at his home in Brookline, August 19, 1918, aged 54 years. He was a graduate of George Washington University Medical School in 1887, and was a Fellow of the Massachusetts Medical Society and of the American Medical Association.

EDWARD TUFTS WILLIAMS, M.D., died at the Boston City Hospital, Aug. 5, 1918, aged 73 years. He was born at Charlestown, Nov. 13, 1844, graduated from Harvard College in the Class of 1865, and from Harvard Medical School three years later, and settled in practice in Roxbury, where he passed his life. He had been a councilor of the Massachusetts Medical Society, physician to the Roxbury Dispensary and Roxbury Charitable Society, and to the Overseers of the Poor for Roxbury. He contributed many articles to the BOSTON MEDICAL AND SURGICAL JOURNAL, among them "Moses as a Sanitarian," and descriptions of a uterine dilator and of a tracheotomy tube.

* From the weekly bulletin of the New York City Health Department, April 7, 1918.

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Original Articles

THE DIAGNOSIS OF FRACTURE OF HIP.

BY GEORGE W. GAY, M.D., BOSTON.

AN old person falls down and cannot get up by reason of an injury to the hip. What has happened? In the vast majority of instances the hip is broken. So constantly does this lesion exist under these conditions, that a tentative diagnosis to this effect is justifiable. The diagnosis of sprain, contusion or dislocation has no standing under these circumstances. Loss of function is a leading factor in hip fractures. The cases of fracture of the hip in old people in which they can stand or walk are too rare to invalidate the rule, as stated above. Such cases are surgical curiosities, very seldom seen and require little attention.

The three cardinal symptoms of fracture of the hip are loss of function, eversion of foot and severe pain on motion. Practically these symptoms are always present in these injuries and can be detected readily even by those who may not be familiar with these cases.

The loss of function is usually complete. Occasionally a person with this lesion can rotate the limb slightly, or even raise it from the bed. The older the victim the less likely is he able to do these things. A broken hip is deprived

of its functions, as a rule, whatever may be the age or condition of the patient.

A person with a hip fracture lying upon his back, presents a clinical picture that is characteristic. The limb is somewhat flexed and the foot is everted more than its fellow, not infrequently resting upon its outer surface. The only other injury to the hip that presents this clinical picture is a forward dislocation, an injury so rare that few surgeons have seen a case.

Extreme pain attended by muscular spasm is always in evidence in the manipulation of broken hips. It prevents any extensive manipulations, nor are they usually necessary, as the diagnosis can be made reasonably clear by other means. Anesthetics are seldom required in these examinations. Without them, there is less danger of disturbing the impaction that may be present and may be so desirable to preserve.

Given these three symptoms,—disability, eversion of foot and pain on manipulation,—the diagnosis is reasonably certain in all injuries to the hip. The older the victims, the more reliance can be placed upon them.

Shortening of the injured limb is almost always present, but it is less readily determined than are the above mentioned cardinal symptoms. "Slight shortening," that is, not

exceeding half an inch, is not always detected, especially in stout persons. In some cases only an expert can detect any difference in the length of the limbs. Moreover, it is claimed by authorities that, in the absence of an injury, in not a few instances there is an appreciable difference in the length of the lower limbs. While unmistakable shortening is a valuable symptom of fracture of the hip, yet it is not as readily detected as are other conditions.

Crepitus is usually absent in impacted fractures, depending, of course, upon the degree of impaction. This symptom is not to be sought too curiously. The manipulations should be gentle and intelligent. The diagnosis can be made satisfactorily without this symptom.

Other comparative symptoms of hip fractures are Nélaton's and Bryant's lines, designed to show the relative elevations of the top of the great trochanters upon the two sides. The comparative tension of the fascia lata above the trochanters is also a sign of some significance.

Not infrequently a fracture of the hip is diagnosed as a dislocation (Cotton). This diagnosis has no standing in the aged, when it is remembered that their hips are broken much more readily than dislocated. The neck of the femur is too brittle to stand the force necessary to produce a dislocation. The latter injury is occasionally met with in the young and the middle aged, but not in old people. About fifty fractures of the hip and three dislocations are admitted to the Boston City Hospital annually. At the Massachusetts General Hospital the same number of dislocations of the hip are received, but only about one-fifth as many fractures as mentioned above.

Furthermore, the only dislocation of the hip that presents the same, or a similar clinical picture as a fracture, is the displacement forward. This dislocation is so extremely uncommon that most physicians have never seen a case. Even Dr. Bigelow, with his large experience, never saw a dislocation upon the pubes. A young man was admitted to the City Hospital many years ago with this injury, under the writer's care. It was reduced without much difficulty and the results were satisfactory.

The most common errors in diagnosis in hip injuries are in calling them sprains and contusions. For many years the writer was in the habit of saying to his internes and other medical students that there are no such disabling

injuries as sprains or contusions of the hip. This is not strictly true, of course, but not infrequently mistakes might have been avoided, had this rule been observed.

The time has come when it is neither wise nor quite safe to diagnose fractures without the aid of the x-ray. This is especially true in all cases liable to appear in court. It goes without saying that in many cases no such examination is necessary, and in many other instances, for obvious reasons, it is neither feasible nor possible to secure one.

Loss of function; eversion of foot; severe pain on motion; these are the cardinal symptoms of hip fractures. The older the patient, the more reliance may be placed upon them. This brief paper may well close as it began: If an old person falls down and cannot get up by reason of an injury to the hip, that hip is broken, in the vast majority of cases.

OBSTRUCTION OF THE SMALL INTESTINE.*

BY JOHN T. BOTTOMLEY, M.D., BOSTON.

THOUGH my remarks will have to do with obstruction of the jejunum-ileum only, yet they must, to a certain degree, deal with the subject of intestinal obstruction in general, since it is evident that a discussion of obstruction limited to a certain part of the intestinal tract is not possible without a more or less general examination into the matter as a whole. No attempt will be made even to discuss the limited phase of the subject in an exhaustive way. Attention will be called, however, to some interesting phases having to do in particular with the small intestine which, by the way, is said to be involved in 90 per cent. of all cases of ileus.

Ileus is a name or term used to designate as a whole that group of symptoms (colicky pain, constipation or obstipation, distention of the intestine, nausea and vomiting) which indicate the existence of an intestinal obstruction. It is not a disease, not a pathologic entity; it is the expression of a pathologic condition which may vary in degree as it does in its causes. Intestinal obstruction is something with which every surgeon has to deal. Its successful treat-

* Presented at the meeting of the New Hampshire State Medical Society, May, 1918.

ment depends to a very great extent on the promptness with which the proper remedial measures are applied.

At the very outset, it should be thoroughly appreciated that absolute accuracy of diagnosis as to the cause of the obstruction and its exact situation is not essential. The more fundamentally important feature is the realization of the fact that an obstruction exists. De Quervain expresses it well, when he writes, "Our main object must be to recognize when surgical relief should be afforded, although we may not always know the precise position and character of the obstruction." Careful and repeated examinations are by no means to be discouraged but prolonged waiting for the purpose of absolute certainty of diagnosis while irreparable damage is being done to the patient is strongly to be disapproved. Any acute illness characterized by severe abdominal pain, persistent nausea and some degree of shock or collapse and unaccompanied by diarrhea is sufficiently suggestive of intestinal obstruction to warrant operative investigation.

Ileus may be acute or chronic depending upon the completeness, suddenness and permanency of the obstruction. The chronic variety is, of course, for a varying length of time, the expression of an incomplete obstruction which under certain conditions may suddenly become complete; the symptoms of acute ileus then supervene; this acute stage may be only temporary (intermittent ileus) or it may be permanent and fatal unless relieved by operation or other procedure. Practically, however, there are to be considered only two main groups of cases:

(1) Those with complete obstruction (acute ileus).

(2) Those with incomplete obstruction (chronic ileus).

Symptoms. The principal symptom and the one which usually appears first is a sharp pain in the abdomen, diffuse, colicky in character and of sudden onset; it is a severe pain which soon disappears only to appear again with increased intensity; it comes and goes with free intervals; there is little or no tenderness; eructation of gas begins; the patient becomes anxious and the anxiety is shown in the features; during the colic a cold sweat breaks out; vomiting starts and continues; all food or drink taken is quickly ejected; the vomiting

may not be violent but it is *persistent* and uncontrollable; sometimes *early in the course* visible peristalsis, though far more common and more marked in incomplete obstruction, may be present and a coil of distended intestine may be seen or may be felt to stiffen under the palpating hand, appearing as an area of increased resistance and giving out a hollow note on percussion; the distention may be entirely local at first but in a few hours it grows more general and the abdomen becomes tense; enemata may at first bring away some fecal matter and perhaps a little gas from the bowel but that happens only very early in the attack and they soon have absolutely no effect; examination thereafter shows an empty rectum; there is little or no rise of temperature and the pulse in the early stages is but little disturbed except during the spasm of colic. Unless relief is afforded, the pain after a time gradually ceases but the distention persists and increases, the vomiting continues; the vomitus, consisting at first of the stomach contents and then of mucus and bile, finally becomes foul smelling, dark colored and stereoraceous; the features become pinched and sunken, the face pale and slightly cyanotic; the tensely distended abdomen is somewhat purplish and absolutely immobile; the pulse is of low tension and of rapidly increasing rate, the respiration becomes rapid and shallow, the extremities become cold and the toxemic patient soon goes on to death.

A variety of acute ileus is the so-called *Strangulation Ileus*, in which not only is there obstruction of the fecal current but also interference with the blood supply and nutrition of the intestinal wall, which quickly leads to gangrene, necrosis and early death; this variety is always accompanied by shock, the severity of which is in direct proportion to the vascular involvement in the obstruction. Strangulation ileus is far more dangerous, more quickly fatal and demands more prompt recognition and treatment than simple *Mechanical (Obturation) Ileus*, in which obstruction to the passage of the fecal current is the only threatening factor and which a patient can endure with relative safety for a much longer time. The occlusion of a loop of intestine in a hernia, either external or internal, or its tight constriction beneath an adhesive band are the most frequent causes of strangulation ileus.

In uncomplicated obturation ileus the symp-

toms are, as a rule, of gradual onset, and local damage to the bowel wall is usually little. It is the form seen in obstruction from gall-stones or other foreign bodies, tumors in the lumen, or tumors originating in other organs and exerting pressure on the intestine.

Acute obstruction involves the small intestine far more frequently than the large. As far as distinguishing symptoms are concerned, in obstruction of the small bowel the pain is more often referred to the region of the umbilicus; the cecum and colon are not ballooned up and the distention is more likely to be central than in the flanks; if the obstruction is very high, the amount of distention may be negligible; in fact, pain, coprostasis and persistent copious vomiting with a flat abdomen indicate obstruction high in the small intestine; vomiting is an earlier symptom and becomes stercoraceous more quickly; the patient fails more rapidly and the collapse is more speedy; suppression of urine is more marked and appears earlier; indican is present in the urine; visible peristalsis and stiffening of the coils are far more common. As the seat of the obstruction approaches the large intestine, the distinguishing signs between obstruction in the latter and in the small intestine are no longer present and a diagnosis cannot be made clinically. The chief causes of acute obstruction of the small intestine are adhesive bands, volvulus, intussusception, tuberculosis, cancer and hernia.

I shall not refer in particular to the symptoms peculiar to each of these conditions.

Differential Diagnosis. The more common conditions from which acute obstruction must be distinguished are:

General or Spreading Peritonitis. The diagnosis may be difficult after the second day because the symptoms of both conditions are then very similar. A history pointing to some acute abdominal affection (appendicitis) ushering in the illness is strongly indicative of peritonitis. The pain is more marked in peritonitis and more continuous, the distention is more general and the abdomen more tense; the peritonitic abdomen is immobile and noiseless; visible peristalsis is never present. Early in the course of peritonitis the vomiting is less persistent. According to Eisendrath, the increase in the pulse-rate is more gradual and steady in peritonitis and there is almost always a rise of temperature. De Quervain lays much stress on

the information to be gained from abdominal auscultation. Dead silence in an evenly distended abdomen is a probable indication of peritonitis; on the other hand, gurgling or metallic sounds heard in one locality in an unevenly distended abdomen point strongly to ileus. Wilms, too, notes the significance of metallic ringing sounds as an early sign of ileus. Careful and repeated auscultation and percussion of the abdomen should never be neglected.

Acute Perforation of a Gastric or Duodenal Ulcer. The history and character of previous digestive troubles are of valuable diagnostic aid and in doubtful cases should be looked into. The initiating pain is sudden, severe, prostrating and the patient is pallid, has a cold sweat and is evidently in collapse. The pain is usually constant and its spread, like that of the dullness and spasm, is along the right costal border into the right flank and thence into the right iliac region. There are usually no periods of relief from the pain. The tense, board-like abdominal wall is very characteristic.

Acute Pancreatic Disease. This is almost always seen in obese subjects and a preceding history indicating gall-bladder trouble is common. The collapse is more prompt, the pain is distinctly in the epigastric region and is frightfully severe; the face takes on the peritonitic aspect but is usually distinctly cyanotic. The meteorism is less general. The diagnosis cannot always be made without operation. After the peritoneum has been opened, the presence of the white or yellowish-white areas in the omentum will indicate the diagnosis.

Acute Cholecystitis. The location of the pain, the tenderness and the spasm are characteristic. There is usually a considerable rise in temperature and, as a rule, a tumor develops very rapidly in the gall-bladder region. A history of previous attacks of trouble in the upper right quadrant is common.

Ruptured Tubal Pregnancy. The menstrual history should be illuminating. In addition to that, the story of a sharp, sudden, stabbing pain in the lower abdomen with the accompanying faintness and pallor should prevent error. Never fail to make a vaginal examination in all doubtful cases.

Tabetic Crises. The Argyll-Robertson pupil, the Romberg symptom and the absence

of the knee-jerk and other reflexes should put us on the right road. Yet the diagnosis may be most difficult, because a paralytic ileus may exist as a manifestation of the tabes or a true mechanical obstruction may exist in a tabetic.

Torsion of Pedicle of Ovarian Cyst. The pelvic examination and palpation of the tumor should make the diagnosis easy in the early stages; in the late stages, when the abdomen is distended and satisfactory palpation is difficult, the call for operation is so insistent that an exploratory laparotomy will settle the question. Usually after an anaesthetic has been given, an ovarian tumor is easily felt.

Acute Appendicitis Sometimes Simulates Acute Ileus. In my experience I have found this particularly true in patients over fifty. It is usually to be distinguished, however, by the presence of temperature and by the localization of the tenderness, spasm and pain. Leucocytosis is far more common in acute appendicitis. A rectal examination may prove of great value.

Thrombosis or Embolism of the Mesenteric Vessels. The diagnosis is difficult and often impossible. The symptoms of thrombosis or embolism and those of acute ileus are usually so alarming that surgical intervention is demanded in either case and hence the need of accurate diagnosis is not great. Thrombosis and embolism usually occur after fifty; in the hemorrhagic form the presence of blood in the stools may give us a clue but that may not appear for some days.

Renal Colic. The locality and the radiation of the pain, its distinct limitation to one side, the finding of microscopic blood in the urine, the presence of the Murphy sign, *i.e.* the demonstration of tenderness by fist percussion over the posterior aspect of the lower ribs on the affected side, and the roentgenologic findings are fairly characteristic of this condition and are of fairly constant occurrence. There are usually few or no signs of collapse at the beginning of an attack of renal or ureteral colic.

An immediate diagnosis is not a necessity but a reasonably prompt diagnosis is a necessity. Repeated careful examinations in the course of a few hours are advisable in doubtful cases and almost always succeed in establishing the diagnosis without a loss of time sufficient to be harmful.

The most common causes of acute obstruction of the small intestine are adhesive bands and kinks, strangulation in an internal or external hernia, intussusception, gall-stones and volvulus. Obstruction by round-worms has been known to occur but it is very uncommon. Spastic ileus is acute but it is a rare condition and is not recognized except through operation.

The mortality of acute ileus even treated surgically is very high—40 to 50 per cent. Unfortunately, relieving the obstruction does not always save the patient's life.

Incomplete Obstruction—(Chronic Ileus). This may be and often is the forerunner of an acute ileus. The clinical picture is not so well defined; in fact, a very considerable degree of obstruction may exist in the small intestine without giving rise to symptoms sufficiently appreciable by the patient to cause him to seek relief. The fluidity of the contents of the small intestine makes this possible. It may well be the symptoms of the causal condition (as, for instance, the unexplained wasting in cancer) rather than the obstructive symptoms themselves that give anxiety to the patient. A vague abdominal discomfort is often the only early symptom.

As the condition of obstruction develops, however, a definite group of symptoms come well into the foreground:

1. Attacks of *Colicky Pain* at first followed and relieved by the passage of gas or of liquid feces. The pain may not be very severe in the early stages but as the condition progresses the pain becomes intense during the attacks and the patient rolls, tosses, sweats and often cries out in his agony. Yet, as a matter of early diagnosis, it is not so much the colicky pain in itself that is suspicious but, as de Quervain points out, it is its constant recurrence and its practical confinement to a single locality as well as its final association with

2. Abnormal local distention (relaxation) and stiffening (contraction) of a coil or coils of intestine and a visible and palpable powerful *Intestinal Peristalsis*—not the slowly progressing, rather widely diffused, almost impalpable, normal vermicular movements of the healthy intestine which are visible in thin persons, but relatively rapidly moving, heaving waves of intense, stiff, cylindrical coils which travel in the direction of and usually cease at

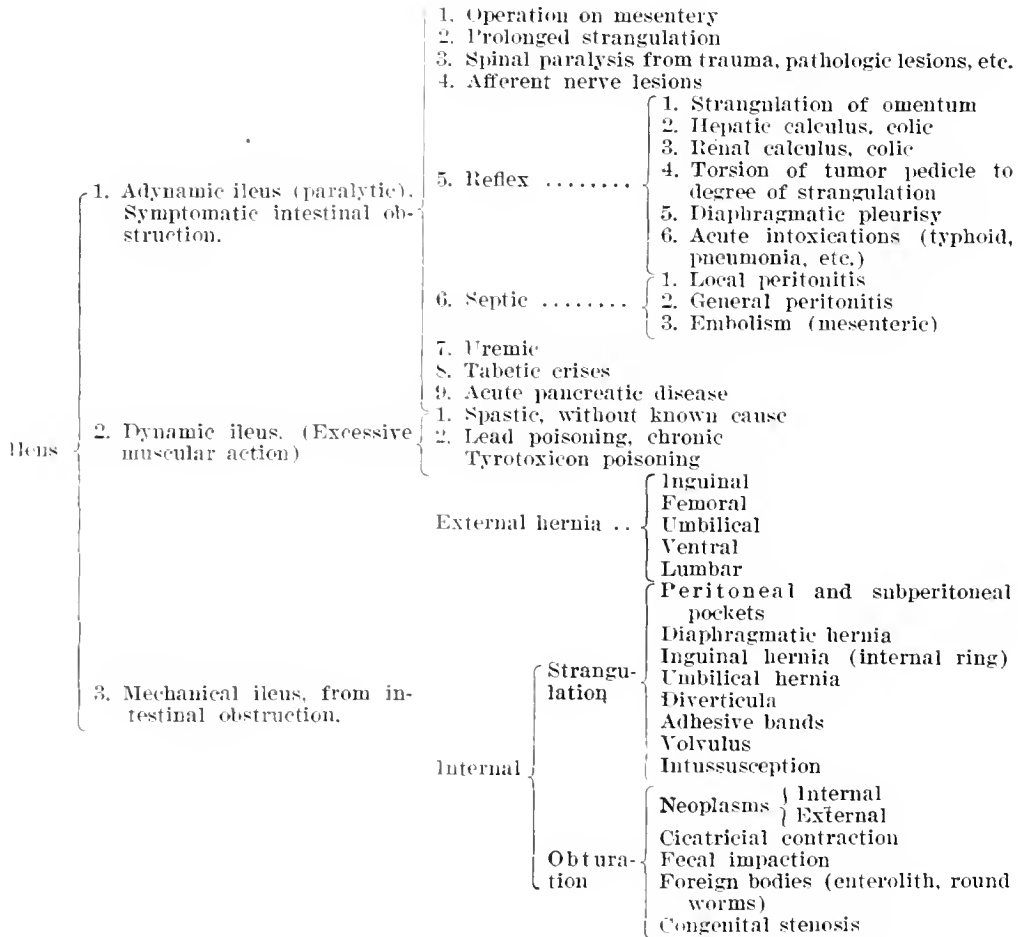
a point approximate to the situation of the obstruction.

3. The presence of gurgling, metallic sounds in the abdomen which are so often heard by the unaided ear and are frequently noticed and located by the patient himself.

The presence of this symptom is entirely sufficient to warrant a diagnosis of chronic ileus and of itself justifies the urging of operation for the removal of the cause. Other

Constipation may not be a noteworthy symptom. Occasionally diarrhea and constipation alternate. There is nothing noteworthy about the stools. Vomiting and nausea as early symptoms are unimportant and are uncommon in incomplete obstruction. They are always present during the attacks of colic but are then reflex to the pain. Later, however, as the obstruction becomes more marked, they may be expressions of the obstruction itself. There is

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symptoms are of secondary importance and indicate only an advancing process.

It is in this variety of obstruction in the small intestine that fluoroscopic and skiagraphic methods (if carried out by experts) of diagnosis are of particular aid in disclosing the location and sometimes the character of the lesion.

Meteorism is seldom present to any great extent and it may be entirely absent. When present to any marked degree, it usually signifies the development of a complete obstruction.

rarely any rise of temperature and at first no change in the pulse rate.

Chronic obstruction may last months and even years without becoming complete. The acute attacks of colicky pain, visible peristalsis, etc., often quiet down and may not reappear until some indiscretion in diet or mode of living causes them to recur. Eventually, as a rule, complete obstruction develops; the symptoms of acute ileus then dominate the picture and demand speedy attention. There is, as a rule, no excuse for allowing the patient to

reach this stage, unless, as may happen in rare instances, the attack of acute ileus is the first noteworthy sign of the chronic obstruction.

The most common causes of chronic obstruction are strictures (tuberculous, malignant, etc.), chronic intussusception and an adhesion of a loop of small intestine to some fixed organ with a gradual decrease in the calibre of the lumen.

Both acute and chronic ileus may have varied causes and may consequently present varied phases of degree and character. This has naturally led to different classifications based on this or that factor in the cause of the ileus or in its expression. I regard John B. Murphy's classification as so comprehensive and so practical clinically that I shall make use of it here in about the same form as he has presented it.

That a clinical distinction between the various varieties is most important, goes without saying. In acute ileus, particularly, laboratory methods of diagnosis are of no avail. We must make a bedside diagnosis and make it promptly. Whether to operate or not to operate, where the place of incision, what condition to prepare for, what prognosis is probable—all depend to a great extent upon what verbal information the patient gives us and what other knowledge we can elicit with our eyes, ears and fingers.

Adynamic (Paralytic) Ileus, which is the result of lack of adequate motor power in the intestinal musculature, constitutes a large proportion of all cases of ileus.

It is necessary only to indicate the possibility of such an ileus as a sequence of injuries and diseases of the spinal cord.

Operative trauma of the mesentery as well as prolonged and violent traction on it during abdominal operations is likely to be followed by a paralytic ileus: hence, the mesentery should be handled as little and as gently as possible. Nor must it be forgotten that the mesentery carries both the blood and the nerve supply to and from the intestinal tube. If the former is compromised to any marked extent, not alone paralysis of the corresponding coil may ensue but even gangrene and necrosis.

Insult to the nerve supply is frequently combined with injury to the vascular supply in prolonged strangulation of a coil and small intestine in a hernial sac. This is notoriously

true in strangulated femoral hernia. When the constriction has been freed, the coil may appear viable and capable of function and be returned to the peritoneal cavity. Yet a fatal result is not uncommon under those conditions because of a thrombosis of the mesenteric veins or a paralysis of the coil in question. The judgment of surgical experience is a very important factor in the successful handling of strangulated hernia.

Similarly, extreme care must be exercised in the doing of operations for the removal of mesenteric tumors and for the repair of mesenteric injuries. Any serious compromise of the circulation demands intestinal resection rather than mere excision of the tumor or repair of the injury.

Ileus dependent upon any of these conditions is in no way characteristic and the best treatment is preventive.

Reflex Ileus is extremely common. It may appear in the course of such acute intoxications as typhoid fever and pneumonia. It is a not uncommon accompaniment of acute cholecystitis, biliary colic, and renal colic; the characteristic symptoms of these conditions are so familiar to all and are usually so dominating that little difficulty need be experienced in recognizing the causal condition.

In the early stages certain thoracic diseases, such as pneumonia (especially in children) and diaphragmatic pleurisy may be confounded with ileus, chiefly because of the accompanying distention. The presence of temperature with chest conditions and its absence with mechanical ileus should differentiate the conditions. The history of a chill is strongly indicative of pneumonia. But the principal obstacle to diagnosis lies in the fact that we forget the possibility of the expression of thoracic conditions by abdominal signs. Maurice Richardson's way of putting the matter cannot be improved upon: "The diagnosis between acute thoracic and acute abdominal disease is always easy as soon as the characteristic signs of either are apparent. The chief difficulty in making a distinction is to recognize that the necessity for that distinction exists, for the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. Once the attention is drawn to the possibility of a thoracic cause, not only for the thoracic but for the abdominal symp-

toms, an accurate diagnosis is perfectly easy." It is not possible to overemphasize the advice that every case with abdominal manifestations in which the diagnosis is not absolutely clear should receive not only a careful chest examination but a satisfactory inspection of the throat as well. Septic throat conditions are not seldom accompanied by signs of peritoneal irritation.

Strangulation and torsion of the omentum and marked torsion of ovarian or other tumors may cause or simulate the symptoms of acute ileus; in the omental condition the diagnosis is almost never made except through operation unless the torsion takes place in a hernial sac, when sudden increase in the size of the hernial tumor may indicate the cause. In the early stages of torsion of other tumors the diagnosis is usually possible through palpation but the distention and spasm in the later stages make satisfactory palpation impossible. Under all these circumstances the surgeon is face to face with an acute abdominal crisis and prompt operation is far safer for the patient than prolonged attempts at academic diagnosis.

Paralytic ileus is the constant accompaniment of a general and a not infrequent one of a local peritonitis. It also frequently appears after abdominal operation—*Post Operative Ileus*—a variety which is of particular interest to the surgeon. It may be of the paralytic or of the mechanical type and the differentiation between these two is a matter of prime importance. The paralytic variety is due to prolonged anesthesia, to operative trauma (whether it be in the shape of careless handling of the coils, undue or prolonged exposure, the unskilled use of retractors, excessive wicking or rough sponging) or to peritonitis. The mechanical variety, while it may have many causes, any one of which may be occasionally active, is almost always due to a kink in the small intestine which may be caused by an adhesive band or by inflammatory agglutination of intestinal coils.

My former chief, Dr. John C. Munro, always felt that the most frequent cause of post-operative ileus was a peritonitis of greater or less degree and extent about the seat of operation, and I believe that view to be in the main correct. The sepsis usually exists at the time of operation and is spread during the operative

manipulations. I also believe that some cases of ileus subsequent to operation on septic foci in the abdominal cavity are manifestations of a general septicemia and that local measures for relief are really useless. We know, however, that many cases recover without secondary operation and that autopsy of some of the fatal cases discloses no peritonitis; hence, there must be a certain number of cases of post-operative ileus in which an infective agent is not active.

How, then, are we to distinguish the non-peritonitic from the peritonitic type? And the paralytic from the mechanical? The differentiation is easy in theory but difficult and sometimes impossible in practice, since the fundamental symptoms are much the same. Pain, distention, coprostasis, nausea and vomiting are common to all types of ileus. There are, however, certain features which may influence our opinion in a diagnostic way. The paralytic type (whether non-peritonitic or peritonitic) always appears relatively early after operation, *i.e.*, twelve to forty-eight hours or less. With the peritonitic type the abdomen is tense, the tenderness is general and the pain, restlessness and anxiety are seen from the first; temperature is always present and vomiting is constant. In the non-peritonitic type (often seen in nervously unstable women) the abdomen is only moderately distended; it feels soft and doughy; the patient does not look peritonitic nor does the condition grow bad so rapidly; the vomiting is less frequent; it is usually easy and not violent and is often unaccompanied by nausea; temperature is often absent and the tenderness is usually not marked; the facial expression is calm and not disturbed. The mechanical variety, as a rule, appears seventy-two hours or more after operation but it may be delayed for weeks and even months. The attacks of colicky pain are severe from the first because of the stormy peristalsis and they usually increase in frequency till peritonitis begins, when they cease; the meteorism is often localized, the degree depending upon the length of intestine above the obstruction; peristalsis may be visible. Borborygmus is always present in mechanical obstruction; if not heard at once, it can be elicited by massage; it is always absent in the paralytic type. The mechanical type shows no temperature. Any case in which symptoms begin after the

fourth day may be regarded as of the mechanical variety.

None of these are hard and fast signs of differentiation but they are of value in a general estimate of the condition. The effect of the immediate non-operative treatment of these cases may have some diagnostic value and it is certainly of use as indicating or not indicating the need of a secondary operation. In cases that are not very urgent Gibson attempts to demonstrate the patency or nonpatency of the intestinal tract by giving the patient powdered charcoal followed by a brisk cathartic.

Case ascribes the greatest value to the roentgenological examination in the diagnosis of post-operative obstruction of the small bowel. The character and distribution of the gas areas which the abdominal shadow may present will indicate the site of the obstruction. A barium enema may be given to rule out the possibility of colonic obstruction. In a few cases a small quantity of bismuth has been administered by mouth and a picture of the stomach and small intestine successfully taken. I have no doubt that these measures in the hands of an expert like Case are of much practical value but I am of the opinion that they would be of questionable value in the hands of the average roentgenologist. The great majority of surgeons must still look for information to the usual clinical signs.

It is evident that no form of non-operative treatment will be effective in the mechanical variety; operation is essential there. We know from experience, however, that non-operative treatment suffices for the relief of a certain proportion of cases of post-operative ileus. I can see no objection, therefore, to trying non-operative measures for a *reasonable length of time* provided that morphine is not given. At the Carney Hospital a certain routine is followed in the treatment of these cases. Everything is withheld by mouth; salt solution is administered subcutaneously or tap water is given by rectum. Heat is applied to the abdomen immediately on the appearance of symptoms; both the moist and the dry form of heat have been used according to the preference of the patient. The dry form seems more effective and for this purpose an electric-light bath applied locally serves very well; the application of heat to the abdomen should be as continuous as the comfort of the patient will per-

mit; pituitrin (1 c.c.) is given *into the muscle* and is repeated every two hours for three doses. Stomach lavage is practised for the vomiting and is repeated at brief intervals (every three to four hours). After a lapse of a few hours an alum, an ox-gall or a milk and molasses enema is given. Frequently the use of these means results in the cessation of the vomiting and the passage of plenty of gas by rectum with consequent relief of the distention; this relief, even if but temporary, indicates that there is no mechanical obstruction and that operation is unnecessary. If, on the other hand, in twelve to twenty-four hours, these measures fail to give relief, if the vomiting continues and if the stomach is not washed clean more quickly and more easily at each successive washing (as it should be if we are gaining ground), prompt resort must be had to secondary operation. Do not waste any more time in useless non-operative procedures.

Several courses are then open to the surgeon: (1) enterostomy after the method of Long. This is a first-rate way of providing for temporary intestinal drainage. While the operation can be done without taking the patient from the ward, it is better, as Long advises, to take the patient to the operating room under the plea of dressing the wound. Local anaesthesia is to be used; it may be necessary to supplement it with a little ether sometime during the operation. Remove one or more sutures and separate the edges of the incision. General and local conditions will indicate whether an extensive search for the site and cause of the obstruction is warranted or not. Usually it is wise to grasp the first distended coil that presents. Enclose an area at least 1-2 inches in diameter with a purse-string suture of chromic catgut, taking rather deep bites with the needle. By catching loops of the suture at two equidistant points and holding the united ends between the fingers, three points of support are secured which will give sufficient tension to steady the parts and to limit the chances of soiling the field. Make an opening through the intestinal wall with a canterypoint. Insert a firm rubber-tube about twice the size of the opening. The disproportion in size causes the edges of the fistula to hug the tube closely and thus prevents leakage. Now tighten the purse-string suture, at the same time inverting the mucous edges of the fistula.

A second purse-string suture may be laid, if the condition of the bowel wall will permit. Bring the tube out through an opening in the omentum and fasten the tube in place; not to the bowel by suture but to the skin by narrow strips of adhesive plaster. Pack the open abdominal wound lightly with gauze as a protective.

(2) After picking up the first distended coil of intestine, incise the wall, insert a rubber tube and flush out the bowel thoroughly above and below the opening and then establish drainage of the lumen through a glass or rubber tube carried over the bed and into a receptacle. The tube may be fastened by one or two sutures to the edges of the opening in the intestine.

(3) Under general or spinal anaesthesia, open widely the operative wound, evacuate any collection of serum, blood or pus that may be present and search in the region of the operative field for obstructing adhesions or agglutinations.

(4) If no local cause be found and if the presence of a mechanical ileus is indicated by the collapsed coils, which are always present below an obstruction in the small intestine, then the collapsed intestine must be followed up until the obstruction be found and relieved. It is usually either a band, a volvulus, or an internal hernia.

One thing is strongly to be urged. Do not continue non-operative measures too long. Do not rely too much as a favorable sign on the patient's well-feeling after a stomach lavage and on the temporary cessation of vomiting. Pass the stomach tube again in a few hours; the reaccumulation of intestinal contents in the stomach is of evil portent, means an unrelieved obstruction and indicates the necessity of operation. The best judgment must be exercised in the choice and extent of operation; do not attempt too much. A live patient with an enterostomy is far better off than a dead one with a completed resection and anastomosis. As a rule, the patient's condition will not permit a prolonged search for the cause of the obstruction or a complicated operation for its removal. When the obstruction is purely mechanical and no sepsis is present, greater freedom of search and action is allowable. I agree with Long that enterostomy offers the greatest relief in the cases of mechanical obstruction and not in those cases in which the gut museu-

lature is paralyzed. My own experience with it in the latter class of cases has been disappointing.

Acute dilatation of the stomach is a condition occasionally confounded with post-operative ileus. Such cases of the former condition as I have seen have always, without exception, complained of a constant dragging pain below the left costal border. Even with no other symptom, the complaint of this pain always leads me to pass a stomach tube and the results are sometimes surprising. The stomach tube is really our only means of diagnosis as well as of treatment. It should be passed repeatedly, if necessary.

Treatment of Paralytic Ileus. For the most part it is merged in the treatment of the causal condition. The variety accompanying pneumonia and diaphragmatic pleurisy responds quickly to the subcutaneous use of morphine. Preventive treatment is of value in that variety secondary to operative trauma; when it continues after the removal of the causal condition or the cessation of its activities, the application of heat to the abdomen, gastric lavage, the use of pituitrin (intramuscularly) and the employment of enemata are our mainstays. I have not been impressed with the value of enterostomy in the treatment of paralytic ileus. If it is to be employed at all, it should be used reasonably early.

I should like much to consider the varieties of ileus called Dynamic and Mechanical but time will not permit. The subject of obstruction of the small intestine has been touched only in a general way, but I trust that I have touched upon certain practical aspects of the subject with sufficient clearness to have made listening to me worth your while. I appreciate very much the honor of having been invited to address this Society and I am most grateful for your kind attention.

IS IT WORTH WHILE FOR THE MAN OF FIFTY TO GET INTO PHYSICAL CONDITION? CONSERVATION OF MAN POWER AT OR BEYOND FULL MATURITY.

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MAN power, in order to fulfill its destiny, must be ample, and not only latent but availa-

ble. Potential energy, be it never so abundant, must be transmuted into kinetic, the possible into the actual, and applied to the object in hand.

For the man of fifty this is even more urgent than for the young man, since indolence, apathy or evil habit then dulls the edge of motor enthusiasm and saps initiative. Hence disuse cripples become only too common, often leading to degeneration and decrepitude.

The state of unfitness for effort which prevails among the fully mature is really pathetic and wholly unwarranted; it is a culpable, almost a criminal wastefulness of good energy.

Upon right decision of the above query does winning of the war depend. In wars of defense, of conquest over aggressive adversaries, or in competitive industries, man power must be not only available but adaptative.

I.

It is eminently worth while for the middle-aged citizen to get into physical condition. After agreeing as to what that state is, then let us agree as to the supposed perils, and later as to what to do and why. No one need imitate the athlete and undergo a long, exacting and strenuous course of physical training, but we should all conserve and enhance our body powers by suitable and constant use. This obtains for every one but the man who toils with his body, and even for him changes of form in actions are desirable; often far more salutary than mere rest.

For him whose chief work involves strained attention and is of a sedentary sort, physical outlets, (motor discharges) are imperative to preserve harmonious interaction between intake of food and its final disposition; between nutritive balance and motor balance, for thereby hangs a tale of nervous equipoise and tissue respiration.

"As the string unto the bow is," so is physical action (motor discharge) to nerve and brain action (nervous discharge) in the relief of tension strains and their effects.

Who is to be the judge of how much and what a man of mature age should do? A difficult question to answer to the satisfaction of all. If you say it is the duty of the medical adviser you must stipulate for one who is qualified through some experience and judgment in the domain of physical activities. The

"physical culture expert" too rarely has discrimination. Beware of the advice of "sporting friends."

Self regulation is the first, the last, the all-important consideration; a process to be learned and practised. We may also use the term "conscious control," an acquiring of mastery over one's parts and powers to the end that each and every item in the make-up as a whole (psycho-physical mechanism) shall acquire equipoise between the start (initiative), the push, pull or turn on the one hand, and on the other, the hold back (inhibition), the guiding or governing or the tempering of motor forces (motivation). Thus every cell and every impulse shall find its level, poise, or equivalency and maintain this automatically as well as consciously.

Among the desiderata are:

(1) Right states of structures from a balanced ration, the body chemistry (metabolic poise) onward to mobility, elasticity, contractility, etc., making for normality or adjustments in living parts; (bio-kinetics or orthobiotics).

(2) Right posture, attaining such poise among the active mechanisms as shall make for economic adjustments between, not only the moving agencies (muscles), the levers (bones), etc., but the just interrelationships of all the complex inside structures.

(3) Right movements, their precise performance, training, grace, exercising (economic use, not only in direction, force, speed and the like, but in frequency and intensity of repetition), to the end that, not only shall balance be maintained in the transmission and transformation of force wherever and whenever desired, but to produce some definite economic result. Waste motion, scattering of force, is the chief fault in all mechanisms.

For example: Getting the body out of bad into good motor habits, removing disabilities of stiffnesses, limitations of excursions; of enhancing nimbleresses; increasing promptnesses in response from impulse to do, interpretation, decision to exact coordinate acts. Illustration: Reaction time: *e.g.*, step on a tack, note how soon one picks up the foot and pulls it out, etc.

II.

Many wise persons and a few scientific ones, too, will answer to the headline query "no." Some of maturest and most judicial minds hold

that physical exercise of any kind is not essential to physiologic balance. They claim it is enough for most persons to exercise the mind alone and to live wholesomely in order to maintain life processes at their best. Horace Fletcher has demonstrated in his own person (and others) that by thorough mastication alone, as he teaches it, and without special training he was able, at the age of fifty-nine, not only to equal the endurance tests in the Yale Gymnasium (maximum, 175 points), but easily to surpass them, attaining a personal maximum of 300 points; all the while living on seventeen cents a day. S. Weir Mitchell,* world famous for brilliancy, many sidedness and scientific acumen, was a living example at 85 years of an enthusiastic mountain climber, who spent hours a day in summer on foot among the hills. He furthermore emphasized in his practice the need of maintaining bodily (motor) efficiency, by urging his patients to make use of suitably adapted exercises.

A goodly number of people, it is true, retain health while putting forth the minimum of bodily exertion. It is also true that a considerable number of those who faithfully pursue motor activities do fall into sundry kinds of evil happenings. These unfortunate persons will generally be found upon analysis to have had unrecognized functional defects, latent or concealed organic derangements, somewhere among the nervous, circulatory, renal, or glandular systems. It is fair to assume that the majority could have obtained correction had proper medical supervision been supplied. Many such have come under my personal observation.

Occasionally I meet instances of exhaustion states, accompanied by distressing neuralgias, apparently due to excessive muscular activities. One gentleman of sixty consulted me for a deplorable state of exhaustion neurosis, who had lived an almost blameless life, but persisted in playing tennis, riding a bicycle, rowing a boat and variously overtaxing his strength. Judicious moderation in these sports, along with a simplified method and elasticizing measures produced a prompt cure. He was in good health twenty years after.

All else being equal, we may safely assume it is desirable not only to cultivate and maintain motor efficiency, but to enhance our sup-

ply consonant with other economic and biologic demands.

Man is a wonderfully endowed animal, well known to be capable of excelling most domesticated animals, whose power and endurance constitute their chief utility. His superiority as a doer, as a goer, to that miracle of activity and stamina, the horse, has been proven repeatedly. The chief element of this human supremacy is generally assumed to be the directing mind. This obtains only to a moderate degree in the instances of savage runners, jinrikisha men, Balkan mountaineers, etc. All the evidence, when sifted, points to the paramount dynamics which resides in fully developed human muscles and those collateral mechanisms which contribute to sustain them in normal competency. For the man of fifty, the *sine qua non* is to retain elasticity, pliancy, mobility, as a fundamental condition of functional competence, notably of the vasa vasorum.

Nor are the diatribes of sedentary cavers, combined and focused upon the negative, competent to disprove the primordial truth that: till man shall be utterly degenerated by social evolution into the nearest possible approach to a disembodied intelligence, he is, and will remain, the better for a systematic (but economic) development of his motor equipment.

III.

How far motor efficiency conditions intellectual competence cannot be statistically determined. Facts to sustain the significance of the interdependence are adduced in another place. Throughout recorded history there is abundant and unimpeachable evidence to show that intellectual forcefulness has advanced *pari passu* with modes of life designed to encourage bodily betterments. It would be tempting to pursue historic parallels, but would lead too far afield. Suffice it to cite one convincing contribution, the book by Mrs. Sophia P. Shaler, entitled "Masters of Fate, the Power of the Will" (Duffield & Co., N. Y., 1906). In this book are sketches of the lives of about 250 human beings distinguished in various branches of the higher realms of endeavor, illustrating how they not only triumphed over serious bodily limitations or infirmities, but also consciously selected and pursued well-devised plans for raising their coefficient of dynamics to a degree enabling them to reach the acme of varied proficiencies.

* As his close associate for 20 years, I speak from personal knowledge.

Illustrations such as these are peculiarly significant because they represent pitiable physical defects. What a noble showing could be made by conversely citing the lives of those who achieved large successes upon a good foundation of physical vigor, judiciously amplified!

Should any captious seeker for truth desire to array the contrary evidence and portray and warn of methods pursued by those who refused obstinately to employ motor activities either for use or pleasure, it would be instructive reading. It remains to be done, so far as I can learn. That much foolishness is uttered by injudicious enthusiasts extolling the virtues of "physical culture," unfortified by critical judgment or by compliance with the criteria of evidence, those of us who believe in wisely training the body, regretfully admit.

One point must be conceded by those who condemn or would ignore the desirableness of physical fitness in maturity or later, viz., that it is possible to learn the truth and judge only by personal experience. Unless one has enjoyed the thrilling pleasure of a body in full tone, in harmonious poise or discipline, for whatever task, duty or competition offers,—that spender of coördinated power, endurance and capacity, he cannot speak with authority. Or he who claims in a long past youth that he was then full of disciplined mettle, able and doing whatever a vigorous youth impelled, but who early subsided into a sedentary routine, is not one to speak the final word, pro or con.

It is possible to neglect with some safety bodily activities till full maturity. There comes a time, however, when it is no longer safe to trust wholly to natural adaptations and compensations, or to nature's god, to supply health indefinitely without personal coöperation. A few may be so fortunate, but it would seem the plainest duty to ourselves to seek counsel and be guided in the right way to earn health by sane vigilant efforts.

Long ago, Emerson, in formulating rules for achieving health, laid down the axiom that it must always be earned, not merely deserved. Just as it is a fallacy for anyone to expect the world to supply gratuitously some form of living without making adequate efforts to earn, so it is wholly fallacious to expect the powers of nature to carry the burden indefinitely without supplying personal coöperation. Nothing be-

longs to us by any right except that of intelligent effort.

IV.

What is "physical condition"?

Let me offer in evidence a leaf from personal experience. It has always been my ambition to keep in fair condition, partly as a groundwork for effective life, partly as a legitimate pleasure, and not least as a clinical evidence of the attainable. During the formative period my own experience was that common to most American youths, with a difference; my ambition was to excel physically, not in feats alone, but for a definite object, viz.: to fit myself for a long life of useful activities. Hence what is ordinarily the spontaneous action of thoughtless youth seeking amusement was for me that, but something more—a laudable purpose or ambition. During the exigencies of active medical practice it is not permissible by custom, much less by the exactingness of a work never completed, to indulge in active sports. None the less, I found it possible to utilize odd moments and to keep my circulation adjusted to all demands, some of them sudden and severe; to keep my weight the same for over forty years; to preserve the size, quality and, above all, the elasticity of musculature closely to the form established during college days. It may be urged that many succeed thus far with less intensive effort, but the efforts expended by me have accomplished something better. As years pass and old age disabilities arise, the care thus bestowed will, in my opinion, go far toward maintaining vital rhythms and act as a defense against catastrophe. In this view I am sustained by analogy and fortified by experience and much scientific and practical evidence. Objections lodged against that form or degree of physical training employed by competitive athletes become cogent mainly because of the excessive strains put upon the organism by the contest, after inadequate preliminary process. A certain number of graphic instances of damages do come to public notice and are made to serve as lurid texts, as solemn warnings. Little attention is given to the vital question of how valuable is the systematic physical education thus achieved by the thousands who remain unscathed, pass into the ranks of triumphant achieving citizenship by reason of the lessons learned. Those lessons teach the value

of persistence, of courage, of endurance, leading to conquest in any line.

Personal observation during a lifetime of over three score years has resulted in amassing much reliable information. Logical deductions tend to prove that physical fitness, natural or acquired, gives enormous advantages to the possessor. Statistics are not available upon which to base scientific deductions, hence dependence must rest upon the statements of men who, like myself, endeavor to judge honestly of the facts by experience and critical observation, and subjecting themselves to the tests.

We may first meet adverse evidence, assertions of those who would have us believe that systematic physical education is needless, makes for animalism, or leads to hurtfulnesses physical or moral. I published a paper on "Effects of Athletics on Length of Life," in 1893, in which were cited life histories of thirty men all over fifty, some over seventy, who had been extraordinary athletes and were at the time of writing in apparently perfect health. Most of these men I knew personally. At present I could multiply the number many times, since my intimate acquaintances, co-eval with myself, are chiefly among men of over fifty or sixty years of age. With equal faithfulness I could cite catastrophes which fell upon a certain few who had been athletes and became disabled or died. The narrative of the latter would be a dismal tale, dealing chiefly with the effects of alcoholism, dissipation, diseases self-induced, only rarely due to "natural causes." In vain do I look among the pages of my memory for authentic instances of genuine damage upon a healthy organism by even extraordinary physical strains. The reply to this might be that possibly those breakdowns, so graphically, even triumphantly pointed out by objectors, were not caused by over-strenuous but by ill-judged or inadequate physical training.

My experience is that systematic training always benefited unless there existed some latent defect, and this should have been discovered before and provided against. Of the three or four instances of such breakdown coming within my experience, there was always some concealed organic anomaly or the guilt of abnormal recklessness and disobedience. Contributory causes must always be reckoned with in

the light of degrees and qualities of aggravation of essential causes.

v.

What are the essential causes of physical breakdown? They are many and diverse. Most, if not all, lie far back among constitutional defects, early infections, toxic effects or residua, due to functional damage to the adrenal system, the chief defensive and regulative mechanisms of the circulation.

The foregoing is about the worst indictment which can be formed against excessive bodily activities. It must be borne in mind that instances which show a history of abnormal susceptibility to fatigue are usually those who have suffered from previous exhaustion states, —a very different thing from even excessive repetitions of acute fatigue.*

It is an interesting fact that those persons whose blood pressure is constantly high, the plethoric, over-nourished type, are superior in vigor till middle age; then they are liable to fall behind in the race. While organic inter-relationships are still in good poise, these men forge to the front, and seem to accomplish more. About middle age, the slender, paler, seemingly less robust type, with normal or low blood pressure, seem to acquire more power, grow stouter, more muscular, and often times far surpass not only in endurance but in brute strength those of the plethoric type. As to longevity, the slim notably outlive the burly ones.

Weak spots or damaged structures may readily become aggravated by over-energizing, hence overstrain of the blood vessels by fatigue toxins until structures give way. The giving way may be partial, occasional, relative, and possibly repairable. They may be cured in proportion to the nature and character of the causes of their persistency, rather than to any temporary severity. Starting points, origins, of damage spots are only understandable and corrigible through an exact knowledge of the natural history and phenomena of disease. Also there may be inherent in the individual such a low measure of restorability (organic adjustment) as can only be inferred. Here we come into touch with special susceptibility to foods (proteins) which form the basis for many kidney disintegrations.

* Notably the cases of Thayer and Busch, *Jour. A. M. A.*, Sept. 10, 1904, cited by Sajous, Vol. ii, p. 1555.

It will be plain, however, that the problem of structures giving way to physical (muscular) strains is one thing; to the toxic bio-chemistry of the body-formed poisons (anaphylaxis), another.

It is yet another matter how the body shall react when subjected to such exercises as are well calculated to enhance functional competence, hence structural integrity, the up-building of tissue, of power, of essential vigor: elasticizing movements, for example, definitely aid the action of vasa-vasorum, hence are conservative.

The human organism advances, other things being equal, in progressive steps, toward its highest fruition by the steady, judicious active use of its various highly differentiated parts. Normal use contributes to higher and better degrees of differentiation.

Neglect or disuse opens the door to retrograde changes. To the end they initiate at least as many perils as over-action. The practising physician sees vastly more evidences of harmfulnesses resulting from the reverse than the obverse. He may not always realize that the morbidities presented are at bottom due to misuse or disuse, so uniformly is he called upon to apply remedies for functional depreciation. That physician is the wisest man who takes cognizance of both factors, and furnishes both correctives, *i.e.*, radical measures for repair along with education in growth of reserve powers.

Too often the fault is that of the patient who demands only immediate relief and fails to encourage or refuses supervision which would lead to radical repair.

VI.

How then shall a person, say in middle life, proceed to secure that pleasurable, desirable state which may be called "good condition"? The term may be borrowed from the language of the athlete who, though being a person in vigorous health, yet purposes to use all known means so to enhance his vigor as to translate the most potential into the most kinetic energy, thence into the utmost power, skill, speed, endurance, in short, concentrated or proficient vitality, of which the body is capable. This highly differentiated power may be applied to achieve victory in any domain.

Certain fundamental facts concerning the status of the body should be held in mind by

everyone: The motor impulses of infancy and childhood are divinely implanted instincts for urging the individual to acquire symmetrical development, normal capabilities leading to accurate adjustments and specializations of centers as well as of the grosser mechanisms. Moreover, this habitual training contributes not only to safety and efficiency as an animal, but also to intellectualization. Unless habitual body use is encouraged, along with suitable opportunities for the play of spontaneity, the individual is so limited in various directions that full competency is never attained. Few ever achieve full development in any direction. Even in the apex of young adulthood, there are constantly found evidences of deficient elaboration of parts. During diverse exigencies and varied forms and demands of life these earlier defects frequently grow worse until they act as incurably weak links in an otherwise efficient chain.

To attain extraordinary development or repair of these weak spots or parts is entirely possible, even in late life. I have cited and can add to them many instances of elderly persons overcoming crippling defects by suitable developmental measures. My experience with an individual is not seldom sufficiently prolonged to warrant the belief that life was for him not only made better and happier for these procedures, but actually prolonged. One notable instance (typical of many) is that of a dear friend who had been under my observation and direction for over twenty years, who from such a state of feebleness that many regarded him as an irremediable derelict (while over-coddled), is now at sixty-five years, a man of splendid mental and physical capacity; indeed, of wonderful vigor and endurance. All this may be attributed to progressive outdoor activities.

VII.

We may roughly define "condition" to be a state of nice adjustment of the heart action to the arterial pressure, and this to the respiratory capacity. There is much more, but this will serve as illustration. Let me cite personal experience again. The narrative ensuing will serve to bring out several factors common to most other persons.

My professional work is similar to that of any active practitioner—continuous, irregular in demands, and exacting. In summer my life

is on the rocky coast of Maine, near mountains. During the winters in the city I keep myself in a state of as good vigor as possible, but can spare little time to pursue open-air sports. As stated elsewhere, my custom and pleasure is to utilize odd moments to elasticize, stretch, and make active tension and relaxation movements, also systematic respiratory acts. Soon as the summer place is reached, through tests by walking up hill, my heart is shown to be sadly out of condition.

Each year I fear to find the effects of advancing age so serious as to forbid a return to full strength. Stiffnesses do advance, likewise painfulnesses in joints. There is only one period of the day available—between five and seven or eight a.m. These two hours, or most of them, are devoted to bicycling to some attractive woodpath, donning moccasins, taking my cudgel and walking up slopes—often up one of several mountains of from 500 to 1500 feet. At first, breathlessness comes at once and eurtails climbing sadly. Every few yards of elevation compels rest. It was not the same at 35 that it is at 60. The adjustment between the heart pump and respiratory reaction, measured in seconds, is now much slower but still prompt. It serves as an index for testing myself and others.*

VIII.

How shall one set about attaining physical condition?

The best way to tell the tale is to cite an illustrative instance, that of a middle-aged man who achieved a marvelous degree of increased health and working efficiency. To be sure, his methods were so radical and thorough that few may be willing to follow him in all particulars, but he serves as an excellent exemplar. Various modifications can be made by each one, as circumstances, tastes and previous states make necessary. The essential principles are the same for all.

F. F., at the age of 52, was an active business man, successful, sound organically, large and powerful. He was too heavy; fairly active, but conscious of a number of minor ailments common to his age and form of life. There were recurrences of digestive discomforts, irregularities of sleep, of heart action, undue fatig-

ability, susceptibility to colds, and particularly those stiffening states in muscles and joints mis-called "rheumatism." Wisely, he determined to rid himself radically of all these. Today, at 65, he is a model of vigor, of endurance, of resistance to cold and disease, and is capable of accomplishing four times as much as before. His structures are all elastic, his muscles responsive, controllable and normal as those of a man of 30. All this was effected by gradually inuring the skin to exposure, and to thorough frictions by brush and hands; exercising nearly nude, but securing complete elasticity by simple free movements, stretchings, tensions in normal directions, followed by full relaxations; by systematic breathings, and, when opportunity offered, long walks. He modified his diet along lacto-vegetarian lines, nuts, fruits, vegetables, chiefly uncooked, some whole wheat or corn bread, and only occasionally, when a guest at the house of others, taking the ordinary mixed diet, but no alcohol, tea, coffee, or tobacco.*

Similar results can be obtained by a less rigorous régime, but it is questionable whether so complete a regeneration is possible, such tremendous power and absolute freedom from all bodily discomforts attainable on a too liberal, over-varied diet. Among the enrious and gratifying effects in this instance were complete freedom from all old-age soreness and stiffness in the tissues and an extraordinary insensibility to cold or temperature changes. Now he wears only figments of underclothes. His winter climate is a rigorous one—northeastern Maine—yet only when in a conveyance does he wear an overcoat, and then needs little more protection than another would on a cool summer's day.

In many ways he puts his strength and endurance to severest tests, and they are phenomenal. The one most prized effect is the power to accomplish results in his business, by reason of the full renewal of organic capacity. In his tastes, enjoyments of sense-organs, and freedom from fatigability, there is formed an appanage which none could fail to covet.

One often hears the sneering remark that to sacrifice so much of time, effort and sensual joy in "these grad grinds" is beyond reason. Many declare they would "prefer to live while they live, and leave the future to take care of itself." Each one to his tastes. Meanwhile, let us

* So much for leg exercises. The cudgel is available to activate the arms alternately and the torso; striking at bushes and occasionally devastating a small tree. This is far superior to golf for many reasons, chief among which is the fact that one may do this when and where one can find time.

* F. F. has for years used a little hand mill to grind his own carefully selected wheat and maize.

briefly enumerate: (1) the amount of sacrifice demanded, (2) the advantages to be gained; comparing these with those which would follow an ordinary life of complacent inactivities and conventionalities, and (3) the principles which should guide one in the quest.

(1) It is true that the customs of society are ordered on liberal lines; that by common consent, when the means of gratification are secured, it is deemed proper to utilize civilized blessings to the limit. What that limit shall be would bear discussion. It is a matter of familiar knowledge that the most wealthy are, as individuals, only rarely reckless in the abuse of food, of alcohol, etc. There are found, especially among those who have enjoyed great wealth for generations, many far more economical in most particulars than those of only moderate means. They are more interested in following well-ordered lives, in employing financial power to provide them with opportunities to live actively in the open air, to pursue rational amusements—all which conduce to health and longevity. Those who give rein to appetites, become reckless of personal consequences, are oftener those who make money readily—"easy come, easy go"—who are less able to exercise restraint because unaccustomed to plenty.

(2) Now as to the degree and kinds of personal sacrifice required to enable one to get into condition; they can be rapidly outlined. It is one of the purposes of this article to show how little of time and effort is required. Ordinarily there is no occasion to demand disarrangement of the routine procedures of life, of whatsoever occupations one may follow. The whole question is one of sincerity of desire, of wholesomeness of purpose.

As illustration I may be permitted to cite again from professional experiences. Instances can be adduced from the whole gamut of human activities, from youth to extreme old age, from captains and privates of industry to humblest householders, professional men and women of largest responsibilities to "retired gentlemen" or gentle women who are perishing of rest (or rust), of stagnation, of obesity, or dry rot.

IX.

Vital processes are stimulated to renewals by any form of mental or physical activity. It is chiefly important to insist upon such hygienic measures, such educative exercises, as shall es-

tablish a due proportion (and suitability) between food intake and outgo of waste products, and between inherent powers of motion and such use of active parts as shall maintain mobility, elasticity, pliancy, hence motor competency not only for direct use but for supplementing the oxidation processes. This can be done, and will be economically done, by holding in mind certain plain rules (which should be instinctive) of posture, of completeness of movements commonly employed, as shall prevent the almost inevitable loss of mobility through disuse. It is true that many forms of vocation (ordinary every-day occupations or household work) afford ample opportunities, provided they are performed with conscientious thoroughness.

All that the adviser may demand above this is a *few moments daily of fundamental movements in normal directions* to make sure that the body performs, if not daily, then twice or thrice a week, the majority of normal movements.

(3) What advantages can be claimed to accrue from all this attention and effort? No matter how comfortable one may feel, how peacefully the organic actions move in their appointed or daily course, as youth is past there begins a steady slowing down of the vital streams, a clogging of the sewers; degenerative changes occur in highly differentiated structures responsible for keeping the divine flame brightly burning until that time when it shall flicker and go out as is ordained.

To be sure, in the case of a few fortunate individuals the tides of life ebb and flow serenely till the natural inevitable end. The vast majority, however, need to use intelligent effort to keep the lamp brightly burning. This is as true of an insentient engine as of a delicate and complicated vitalized machine. Suffice it to say that in the experience of physicians instances are incessantly met of grave disabilities due almost solely to disobedience to the more imperative natural laws; some hurts received are small but others so large as to be never wholly remediable. All these decrepitudes could have been prevented by habitually exercising conscious control or yielding instinctive obedience to nature's self-regulative laws.

A large proportion of disabilities, often of diseased states, can be remedied satisfactorily

by following well chosen, rational or wisely directed personal hygienic procedures. It is often possible not only to re-acquire good health, but also to go much further and develop unsuspected latent powers till the result is an astonishing betterment or rejuvenation.

(4) The essential principles by which physical reintegration or restitution can be achieved may be only lightly touched upon in this essay. We will merely emphasize certain points of which few seem to realize the importance. Every thoughtful person is aware of the fundamental items of personal hygiene. Even here there is much debate, even confusion, and some unfortunate disagreements as to important details or procedures. It must be admitted that divergences of view are often based less on methods than on circumstances, which may be despotic. Among these despotic circumstances are vocation, climate, racial peculiarities, or long-established habits, tastes and accustoming.

Diet is a great subject being now forced on all. The question of suitable diet hangs more on: (1) how one eats; (2) how much, rather than (3) what one shall take. Underfeeding in certain states is a peril; in a much larger group overfeeding is a direct, perhaps the sole cause for organic derangement and degeneration. The balanced ration is capable of wonders of betterment. It is pretty well established that an excess of proteid food results in a large group of hurtful effects. The whole range of articles suitable for the diet of an individual must be judged in the light of so many factors that it is the prerogative of the directing physician.

How to eat has been taught so graphically and elaborately by Horace Fletcher that it is well to recommend his books to those who wish to be well and well informed. Briefly, his rules may be summarized as follows:

Take a mouthful of food and chew it till it is swallowed unconsciously. Take no more food in the mouth till the first is disposed of. Use no fluid to wash down the half masticated food.

For temporary purposes a reduction of diet to simplest articles and smallest variety is of life-saving efficacy. It is also the one means to get into condition promptly. When digestive processes or harmonies are in doubt, simply omit one or more meals till equipoise returns.

Much is to be said in favor of a diet of nuts, fruits, cereals, with or without milk and eggs.

Safe rules for anyone, unless a physician shall be consulted, are to be careful how to eat and to avoid much meat and excess of sugars; take whole wheat bread only one day old (except fresh corn meal "pones"), and select from an ordinary table what experience shall teach is suitable. Alcohol as a beverage is objectionable.

Few factors in personal hygiene are more important than the care of the skin, or contribute more to reform health. Friction of the skin is so valuable that it is safe to assert that the faithful use of a flesh brush is superior to the careless bath. Bathing is a delightful luxury and most useful as a remedial measure, but cleanliness can be equally well secured by thorough skin friction. To avoid the evil effects of chill, of catarrhal states and to keep the kidneys in good order, few measures are superior to salt friction baths. As a routine procedure let me recommend the following: On rising throw off the clothing and rub the entire body briskly for at least five minutes; then resume a covering, *e.g.*, a wrapper, and proceed with the toilet; or better, at once take a sponge bath, using a wash rag dipped in cool water on which is placed a small handful of salt. Rub this thoroughly all over the surface, beginning with the feet, then upward and rinse off with cold water and rub dry. Or one may use soap to arm-pits, buttocks and feet, but only rarely all over. Afterward rub in some oil, especially in cold weather, two or three times a week. The subject of achieving full tissue elasticity is so paramount in postponing the effects of deterioration that it warrants a separate paper.

THE PROSTATIC—HOW SHALL HE BE MANAGED?*

By FREDERICK B. SWEET, M.D., SPRINGFIELD, MASS.

THE prostatic has ever been a difficult patient, both from his own and the surgeon's point of view. He is old, has the inevitable degenerations that go with age and suffers from a condition which demoralizes one of the vital excretive functions of his body. The mechanical barrier to the voluntary control of the urinary stream, moreover, causes a strangely unbearable type of suffering. Catheterization

* Read at the Annual Meeting of the Hampden District Medical Society held at Springfield, April 23, 1918.

brings temporary relief, but leads to yet more grievous ills.

All who have practised for long have had experience of these cases and will, I am sure, concur in the opinion of a well-known surgeon who said that, "The last day of the unoperated prostatic may well be said to be his best day." His last day, according to this estimate, is not long deferred, for the average length of life of the unoperated case is three years from first catheterization. That an occasional patient becomes immune to infection and survives for long years has no significance unless his experience so influences his physician and friends as to be the cause of fatal delay in dealing with some fellow sufferer. Without prompt operative relief, the prostatic becomes a slave to his bladder and a miserable septic, uremic, degenerate in body and mind. Medical treatment cannot cure him; his trouble is primarily mechanical and must be relieved by mechanical means. His problem is, therefore, surgical and as such, has proven highly intricate and difficult.

No class of case requires greater care in selection, skill in surgical technic and judgment in general management. It has, therefore, been very interesting to watch the evolution of the surgery of the prostate. Early attempts at surgical relief yielded so high a mortality that for years after the beginning of the era of true major surgery, few had the hardihood to attempt the operation. The mortality was so alarming, as experienced by the average surgeon, that the statistics of Freyer and Young, when published a few years ago, were received with a good deal of skepticism. Time has brought vindication to both of these specialists, however, and none now question the feasibility and comparative safety of operative relief for these aged sufferers.

Freyer doing the supra-pubic operation, reported 1000 cases with a death rate of 5.5%. Young, using the perineal route, reported about 500 cases with a mortality of 3.7%. These remarkable results were possible because the cases were picked cases and because the operators were men of unusual skill and experience. Nothing like such results had been obtained by any other surgeon. The general death rate in the run of hospital cases at that time was estimated by Rovsing as from 10 to 20%.

The publication of Freyer's and Young's

statistics and methods of treatment created great interest and have been productive of remarkable improvement in general results. A world-wide controversy arose as to which route was preferable. The consensus of opinion now is that for the majority of cases, the supra-pubic route is the best.

Then came discussion as to the best methods of pre-operative and post-operative care and for a time there was such divergence of view, that it was difficult to form an intelligent opinion from the literature. Lately the pathologists have entered the lists and indulged in lively argument as to whether the hypertrophy was adenomatous or a true chronic prostatitis. The present feeling is that the two conditions are practically the same,—an adenoma being nothing more or less than a chronic lobular prostatitis. None dispute the rather frequent incidence of prostatic carcinoma. Adenomas occur in the lateral and median lobes while carcinoma seems to elect the posterior lobe. Out of all the research and discussion has been developed a plan of management which has removed these risks from the extra hazardous class to one of relative safety.

Before outlining this plan, let us briefly consider some of the difficulties which are presented and must be overcome.

The age of the prostatic patient is from 40 to 90 years. He necessarily suffers in varying degrees the infirmities incident to his age, such as hard arteries, chronic degeneration of heart and kidneys, chronic bronchitis, etc.

Superimposed is a condition which tends to aggravate these natural degenerative processes and adds a formidable pathology of its own:—cystitis, vesical calculus, diverticula, dilatation of ureters, and kidney pelvis, compression of kidney, pyelitis, pyo-nephritis, general sepsis and uremia. The degree and severity of these several symptoms are as varied as the number of cases treated.

One patient is young at 80, another old at 60. The first catheterization sounds the death knell of one, while years of catheter life may be well borne by another. Some come with obstruction as their only symptom; others present themselves with bladder distended, compressed kidneys, dry tongues, torpid mental state, high blood pressure, general sepsis, failing heart and profound uremia. In most cases the kidney symptoms dominate the clinical picture and are the determining factor in

the case. The kidney disturbance is the direct result of compression from damming of the urinary stream. Different kidneys react differently to back pressure. Generally, if the bladder is able to empty itself fairly well, large amounts of urine of low gravity will be passed. If the bladder wall be hypertrophied, and its cavity contracted, small amounts of urine will be frequently passed but the 24 hour amount will be small. Where obstruction is all but complete, the kidneys secrete until the bladder is filled to capacity; when secretion ceases.

If a bladder so filled is suddenly and entirely emptied by catheterization or cystotomy, it will probably at once fill with blood. This is often a distressing complication. It can be prevented by the introduction of an indwelling catheter through the urethra with gradual withdrawal of urine. The moment the urine becomes blood tinged, the amount drawn at a time should be lessened. It often requires days before the bladder is sufficiently emptied safely to permit free constant flow. The intermittent flow is best managed by using a cork in catheter end as a control.

The question as to whether the obstructing tumor is of the usual benign type or is malignant, must be considered. If the patient is under 60, we should always suspect cancer—also in cases beyond that age, in whom the symptoms develop suddenly. Vesical stone is a frequent complication and if the operation is done at one stage, doubles the operative mortality. New growths of the bladder wall occasionally occur coincidently with obstructive prostatitis and are a very serious complication.

These complicating conditions are much less serious, however, now than formerly, for reasons that will be later given. The most formidable difficulties of the situation are the direct result of the obstruction, namely, kidney compression, sepsis and consequent disturbances of the cardio-vascular renal system. Bladder drainage is, therefore, the first essential of treatment, since it decompresses the kidney, affords exit for septic material and immediately relieves the patient's suffering.

Autopsy findings and observations at the operating table, provide undeniable evidence of the effect of obstruction at the vesical neck, in that the cases show hydro-ureter, hydro-nephrosis and pressure destruction of the kidney substance. More than once, I have been able

to put my index finger into ureteral openings, so dilated were they from back pressure.

With this condition of the bladder, ureter and kidney, it is easy to understand how easily sepsis may be introduced by catheterization or by way of the blood stream.

Soon after Freyer and Young made their contributions, several men, working more or less independently, became convinced that the hazard of these cases lay in the compressed and diseased kidney and not in any inherent defect in the operation itself.

Dr. Lilienthal of New York was one of the first to modify his treatment in accordance with this belief and drain the bladder as the first step in the operation. He introduced an indwelling catheter through the urethra and was gratified to find that this simple procedure often changed a bad risk to a safe one. Following this more or less haphazard work, Dr. Paul Pilcher of Brooklyn undertook a very painstaking and scientific investigation of the effect of decompression by drainage which has resulted in the establishment of certain clinical facts and been of great value in the solution of the whole prostatic problem. Before publishing his findings and describing his methods, he very thoroughly tried them out in a large number of cases. His original article was published in 1914. His work has served to emphasize the advantage of the two-stage operation and the publication of his results has led to its very general use with a surprising lessening of post-operative complications and mortality.

While every man must determine his own detail of management and operative technic, I believe all should accept the clinical facts and significance of Pilcher's findings and in general, plan his treatment in accordance therewith.

He divides the clinical results of drainage and decompression into three stages.

First Stage. The patient presents the usual symptoms of retention. The bladder is drained, the back pressure on the kidneys is suddenly relieved, cloudy swelling and congestion of these organs promptly occurs.

Second Stage. There is no great change in patient's condition for three or four days, except the relief from the discomforts of a full bladder. On the fourth or fifth day, things begin to happen. The blood pressure falls, the amount of urine drops from perhaps 100

ounces to 15 or 20, the temperature and pulse rise, the tongue dries, hiccough is often present, the patient becomes restless or dull and apathetic. There is nausea. Albumen becomes present in large amount and functional efficiency of the kidney diminishes alarmingly. Soft distention of the abdomen is one of the earliest symptoms. Of course different cases react to a varying degree, but even the best risks show the reaction definitely.

If a simple opening of the bladder so changes the patient's condition for the worse, it is little wonder that so many cases died on the fourth or fifth day after the one-stage prostatectomy, which added the traumatism and loss of blood and lengthened anesthesia of major operation. Ether has a very bad effect on a compressed kidney.

Third Stage. In a longer or shorter time, these symptoms ameliorate. The blood pressure rises to 160 or 170, the urinary output to 50 or 70 ounces. Albumen diminishes to a trace, the tongue cleans, the eye grows bright, the appetite returns and the patient begins to take an active interest in things and people. Coincidentally the kidney function approaches the normal as determined by the pheno-thalin test.

The changed condition is often very remarkable and must be seen to be fully appreciated. The time of its coming varies greatly. In my own cases, it has occurred anywhere from a few days to many weeks. In some, it never comes. The second stage of the operation should never be undertaken unless it has come. Its advent is an infallible indication that the procedure may be safely completed, for it means that the man and his kidneys have found themselves and there will be no repetition of the alarming symptoms.

The recognition of the coming of this happy change devolves upon the surgeon and he must judge each case on its merits. The efficiency of the kidney is of first importance but the general clinical state of the patient is hardly less so. Broadly speaking, it is safe to go ahead when he secretes from 70 to 100 ounces of urine of good specific gravity, eats and sleeps well, speaks with a strong voice and shakes your hand with vigor. In a word, when it seems apparent that a goodly degree of his normal "punch" has returned, then and not till then, should he be relieved of his offending gland.

In conformity with the above considerations, the management of the average prostatic should be essentially as follows:

The opening of the bladder supra-pubically (under local anesthesia or gas), the exploration of the bladder and the tying in of a Pezzer catheter for continuous drainage. The opportunity thus given for exploration of the bladder is most valuable and does away with the necessity for the use of less accurate means of diagnosing possible complications, such as x-ray examinations for stone and cystoscopic examinations for new growths and the determination of the condition of the prostate.

If calculi be present, they are at once removed. If new growths or diverticula be found, they can be dealt with then, or left until second stage of the operation. The shape, size and type of prostate can be determined by sight and touch.

The cystotomy wound instantly gives us accurate knowledge that otherwise could be obtained if at all, only by more elaborate methods. Coincidentally and primarily, it is the first step in the necessary treatment and relief of the patient. Experience teaches that the Pezzer catheter can be sutured into the bladder so that it will not leak and that it may be worn for weeks at a time without changing. It does not cause irritation and when removed will be found absolutely free from phosphatic crusts or other gross contamination.

It is seldom necessary to irrigate the bladder during the indwelling of the catheter, except to clear it of blood clots during the first few hours. Personally, I believe that continuous drainage rather than washing with chemical solution, is the best means of cleaning up a dirty bladder. The patient is kept in bed 24 hours after the cystotomy, urged to drink tap water freely and given full doses of hexamethylenamin. Next day, if he is able he is gotten out of bed and usually kept up more or less until the symptoms of the second stage on the fourth or fifth day knock him out. The treatment of this stage is symptomatic and is largely aimed at supporting the patient and stimulating his kidney to action by forcing fluids by mouth, rectum and, if need be, intravenously. When he cheers up and reaches the condition of operative safety, he is anesthetized, the Pezzer catheter pulled out of his bladder, the lower stitch in his supra-pubic

wound removed and the index finger wormed into the bladder by following the catheter fistula. This is easily done and the prostate removed in the usual way. This removal may be easy or difficult. Broadly speaking, the larger the prostate, the easier and the less bloody the operation. The small fibrous glands are not easily negotiated and I know of no surgical procedure that can prove more tiring and difficult.

Hemorrhage is sometimes slight; at others, free. It should always be controlled before the patient leaves the table, as it is in every way undesirable for these old men to be put to bed bleeding. The simplest way of control is by the Hagner bag. Gentle traction on the stem of this bag will practically always prove effective unless the bladder has been unnecessarily mutilated. The tendency to excessive bleeding is much lessened by the two-stage operation.

The difference in the amount of congestion in and around the gland at the first and second operation, is most striking. This improvement is not the least of the advantages of the method. The prostate removed and the Hagner bag in place and inflated, a large rubber tube is introduced into bladder wound and held in place by a stitch through the skin. This gives free exit to urine and blood clots. Tube and Hagner bag are removed next day and a Pezzer catheter introduced through wound from which the large tube came. This catheter is usually removed in about five days and the patient soon begins to urinate normally, although it is at best two to four weeks before the suprapubic sinus closes for good.

Irrigations are seldom used during the convalescence. A sound is never passed. The patients are strangely free from complications or discomfort after the second stage and I have never seen a repetition of the alarming symptoms which follow the first. They require little treatment aside from good nursing. They are gotten up on the second or third day and encouraged to get about and go to the toilet as early as possible. Most of them regain urinary control promptly. A few develop orchitis or epididymitis.

The rejuvenation which follows successful prostatectomy is truly remarkable, and there are no more grateful patients than these old men who have been thus made over.

The results obtained by the above outlined treatment are so vastly better than by other methods, that it is hard to believe that one is dealing with the same type of risk. In several clinics, the death rate is now only 5%.

When we consider the age of the patients, it will be seen that few major surgical conditions are now better managed or give a lower mortality. This showing should give the surgeon courage and enthusiasm and bring to the medical man such confidence as shall induce him to advise early operation and thus avoid those distressing complications which are peculiar to the neglected cases.



THE RADICAL CURE OF HERNIA UNDER LOCAL ANESTHESIA: COMBINED WITH SCOPOLAMINE AND MORPHIA.

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

THAT local anesthesia is peculiarly suitable for the performance of a radical cure of inguinal hernia has been generally accepted: the use of scopolamine and morphia as a general hypnotic is less frequently employed with it, and in this community ether still seems to be the anesthetic of choice.

During the past six years the writer has used combined local and scopolamine-morphia anesthetic in over five hundred cases of inguinal hernia, and has come to regard it as the method of choice. Properly performed local anesthesia allows the same technical steps of the operation to be carried out as when a general anesthetic is employed, and the combined use of scopolamine and morphia eliminates all consciousness during the performance of the operation, which is always preferable, both from the viewpoint of the patient and the operator. Those that have used local anesthesia in the performance of inguinal hernia will agree, I believe, that the infiltration of the tissues beneath the fascia of the external oblique muscle simplifies the technical steps of the operation, especially in finding the sac. Moreover, following the completion of the operation the united tissues are not subjected to the strain which must accompany vomiting, when it occurs after ether anesthesia, or the cough sometimes resulting from ether inhalation. By administering scopolamine and morphia the patient loses consciousness, while in

bed, in a most pleasant manner, and the apprehension of taking the anesthetic, or going to the etherizing or operating room is eliminated, which is no small matter to the average patient.

The use of this combined method of anesthesia has permitted the removal of the appendix in over 80% of the cases of right inguinal hernia, and the operation of gastroenterostomy, gastrostomy, cholecystostomy, cholecystectomy, appendectomy, suprapubic and perineal prostatectomy, internal and external urethrotomy, hemorrhoids, and fistulae, goitre, umbilical and ventral herniae, and amputations have been successfully carried out in patients who, for one reason or another, were not considered suitable subjects for general anesthetic. Two patients, subjected to thigh amputation for arteriosclerotic gangrene, had no local anesthesia, except to the nerve trunk, and it is the writer's belief that by employing scopolamine and morphia all local operations may be performed with a much smaller amount of the local anesthetic. While no untoward symptoms have occurred in the writer's cases, other than a mild muttering delirium in some, lasting for several hours, scopolamine and morphia in too large doses is said to have a somewhat depressing action on respiration. The bad results from the use of scopolamine and morphia have been the depressant influence on respiration, occasionally to the point of asphyxiation. When it has occurred it must be due to a rare idiosyncrasy of the patient or to enormous doses of the drug, as the writer has employed it in over six hundred cases without encountering it. Physiologically, scopolamine acts on the cerebrum, inducing sleep. It has a depressant action on the spinal cord, but is not an analgesic. The pulse rate is lowered and respiration somewhat depressed. The pupils are dilated; the skin becomes moist, and the throat and mouth dry. The effect of the combination of scopolamine and morphia lasts 6-8 hours and has the advantage of not requiring post-operative injection of morphia, as so frequently occurs following ether anesthesia, and the patient has no ill effects in the post-operative recovery.

The technic as we have employed it, in the performance of inguinal hernia and other operations, is as follows: Two hours prior to the operation, from 1/120 scopolamine and 1/6 morphia; to 1/250 scopolamine and 1/8 morphia, according to the physical condition of the

patient, is administered. One hour later the memory is tested by simple questioning and the suitable dose for the next administration judged, and increased or decreased over the first dose, as conditions indicate. In the average adult a second dose of 1/120 scopolamine and 1/6 morphia will be required, as little or no effect may be expected from the first dose. About one hour later, just before taking the patient to the operating room, the memory is again tested, and if absent no more drugs are given. This state of the patient is the most common. Less commonly, however, more of the hypnotic drug will be required. When this is so, scopolamine 1/200 or 1/250, but without morphia, is given. After the patient arrives in the operating room, quiet should be observed, and if the light is bright a towel should be placed over the eyes. The legs and arms should be confined as for any local operation, to prevent voluntary and involuntary motions.

The solutions employed for the local anesthesia have been novocaine, 1/4 to 1 per cent., while 5 drops adrenalin to the ounce; Apothesine, 1 per cent.; quinine and urea, and when none of these solutions could be obtained, cocaine, 1/4 of 1 per cent. When novocain was obtainable it has been the solution of choice, but Apothesine has proven quite as satisfactory. Quinine and urea seems the least valuable, and cocaine is to be avoided if possible.

The skin infiltration should be carried out with an ordinary subcutaneous syringe fitted with a fine needle, and the infiltration should be made to extend from one inch above the point of the internal ring to a point overlying the spine of the pubis. Infiltration of the subcutaneous tissue may be carried out with a larger syringe and needle, and a liberal amount of the fluid used (about 1/3 oz.). Three minutes' time should be allowed to elapse before the incision is made, and none but sharp-cutting instruments should be used, to avoid pressure. After the skin and subcutaneous fat have been divided, the superficial vessels snapped, and the fascia of the external oblique exposed, the solution should be injected beneath the fascia throughout the length of the inguinal canal, and allowed to remain three minutes before the fascia is divided. The injection thus being made results in a block of the three nerves concerned.—the ilio-hypogastric, ilio-inguinal, and genito-crural,—be-

fore exposing them. The two former nerves cross just above the internal ring, lie on the internal oblique muscle and are directly beneath the fascia, while the genito-crural passes along beneath the spermatic cord. By injecting about $1/3$ ounce of the fluid beneath the unopened fascia of the external oblique the fluid is pressed into the surrounding tissues, so as to reach the conjoined tendon and Poupart's ligament and usually produces a complete block in the ilio-hypogastric and ilio-inguinal nerves, and possibly the genito-crural. After allowing the injected fluid to remain beneath the fascia for three minutes, it is divided, without cutting the fibers, the full length of the canal, taking care to open the external ring at its inner arch, so that a generous external flap of fascia will result. If the nerves are properly blocked the fascia may be freed inward to the conjoined tendon and outward to Poupart's ligament by blunt dissection. As the fascia is lifted, the ilio-hypogastric nerve is seen running inward and the ilio-inguinal running downward in the canal; and if the block is not satisfactory, the nerves may be infiltrated directly. This, however, is seldom necessary. The edematous tissue in front of the sac is easily separated, the sac isolated, opened, freed of any content, and then twisted so that it is puckered well under the internal oblique muscle, which is lifted so as to allow the sac to be transfixed and cut off beneath the muscle. The stump of the sac is fixed high under the muscle by a needle on each of the two ends of the suture transfixing the sac stump, and passing them through the muscle and fascia above the point where the fascia has been divided. The suture is tied, thus drawing the peritoneum as high above the internal ring as is possible. The cord is then lifted from its bed, and if the genito-crural nerve has been blocked, no pain will result; but if the block is not complete, the cord should be infiltrated as high as possible with a fine needle, care being taken not to penetrate the spermatic vessels. The cord being freed, it is held to the inner side of the field by snapping the upper and lower ends of the inner edge of the divided fascia of the external oblique muscle. By lifting the fascia by these snaps, the cord is held out of the field and the conjoined tendon becomes visible. A kangaroo tendon suture is passed through the conjoined tendon and Poupart's ligament, and tied, so as to

make a new internal ring of proper size around the cord as it passes into the pelvis. The conjoined tendon and Poupart's ligament are united by a running kangaroo suture without tension, and burying the ilio-inguinal nerve below the union; care being taken at the lower part of the union to make the approximation close to the spine of the pubis. The external edge of the divided fascia of the external oblique is drawn under the inner layer and united to the conjoined tendon by catgut, and the internal layer is then united to the external surface of the outer layer by a running suture of catgut, thus making the new floor of the canal to consist of the union of the conjoined tendon and Poupart's ligament and two layers of the fascia of the external oblique muscle. The cord then lies in the fat of the deep layer of the superficial fascia. If the external oblique fascia is opened above the point at which the cord dips into the pelvis, it is closed by a catgut suture. The cord is covered by a running catgut suture uniting the cut edges of the superficial layers of the superficial fascia. The external wound is closed by a single subcuticular silkworm gut suture.

Book Reviews.

Military Surgery. By DUNLAP PEARCE PENHALLOW, S.B., M.D. London: Henry Frowde, Oxford University Press. 1918.

The first edition of "Military Surgery" has been favorably reviewed by the JOURNAL. This second edition merits only further commendation. The evolution of methods in the treatment of war wounds has been so rapid that ideas and theories must be readjusted constantly because of the development of more efficacious methods. This edition contains a description of the Carrel method of treating infected wounds, a technic which is one of the most important advances in modern surgery. The chapter on "Treatment" has been entirely revised according to the most up-to-date material available. New illustrations have been added throughout the book, especially in the chapter on the treatment of fractures, which has been somewhat enlarged and revised.

Emergencies of a General Practice. By NATHAN CLARK MORSE, A.B., M.D., F.A.C.S. St. Louis: C. V. Mosby Company. 1918.

This volume, "Emergencies of General Prac-

tice," with 251 illustrations, merits high commendation. It deals with the common, unheralded accidents and emergencies which confront the practitioner at the time when least expected. The author records some of the observations and practical experiences resulting from forty years in emergency practice. Reference is also made to certain pathologic conditions, such as appendicitis, tubal rupture, and acute pancreatitis, which may be considered emergency cases, though distinctly surgical. The removal of foreign bodies, asphyxiation, fractures and dislocations, amputations, obstetric emergencies, and poisoning are among the topics considered. The general practitioner should be familiar with the clinical symptoms of these conditions in order to be able to act with rapidity and good judgment.

The Method of Enzyme Action. By JAMES BEATTY, M.A., M.D., D.P.H. London: J. and A. Churchill. 1917.

This volume, with an introduction by Professor E. H. Starling, M.D., Sc.D., F.R.S., brings together the chief results of modern research on enzyme and catalytic actions, and presents an hypothesis of ferment action. The author explains the mobilization of life's forces,—air and water. He shows that the control of the rate and the sphere of reaction is necessary for the evolution of living things. The two qualities of enzymes are explained: (1) the power, common to all ferments, of attracting the H or OH groups in water; (2) the power, specific to the ferment in question, of adsorbing some particular substrate. The hypothesis of enzyme action is based on the possibility of combination between molecules and the hypothesis that this molecular combination loosens the internal bonds in one or both of the combining molecules. The importance of the study of the composition and method of action of enzymes is considerable, because a sufficient insight would enable the physician to discover the cause of any fault in metabolism and to rectify it by such a simple method as the injection of a simple electrolyte or non-electrolyte into the general circulation or into the part affected. The author believes that it may be possible to manufacture some of the enzymes, a step which would lead the biologist nearer to his goal,—the synthesis of life itself.

The Treatment of Cavernous and Plexiform Angiomata by the Injection of Boiling Water (Wyeth Method). By FRANCIS REDER, M.D., F.A.C.S. St. Louis: C. V. Mosby Company. 1918.

This monograph deals with the treatment of vascular tumors by the injection of boiling water. Many of these tumors are inoperable, or,

when operated upon, leave disfiguring scars. The Wyeth method has obtained most satisfactory results; of 104 cases subjected to this method, the author has no failures to record. The injection of boiling water is not entirely free from danger, for embolism or meningeal trouble may possibly result, but of all procedures, this is undoubtedly the safest. In this book, the technic of the method is explained and the details and illustrations of numerous cases are given.

Cancer: Its Nature, Causes, Diagnosis and Treatment. By ROBERT H. GREENE, A.M., M.D., F.A.C.S. New York: James T. Dougherty. 1918.

This volume deals with cancer from the point of view of a surgeon and a physiological chemist working together. Methods of diagnosis, and the principles and details of treatment are presented. In Part I, the intrinsic causes of cancer are discussed, according to the theories of Cohnheim and Ribbert and the parasitic theory. In considering heredity in connection with malignant growth, the author expresses the belief that although there are as yet no conclusive data to confirm it, there exists a hereditary tendency to cancer transmission. Part II deals with the nature of cancer and precancerous conditions. Part III is devoted to the diagnosis of cancer. Methods of sulphuric findings in the blood and urine are described in detail. The value of diagnosis by chemical and bacteriological means, and by x-ray and cystoscope are considered. In Part IV is expounded the view that the basis of all successful treatment is to be found in measures which tend to increase tissue metamorphosis. The uses of such agents as vanadium and arsenic, iron and manganese, condurango, and other bitter tonics are explained. In the matter of excision, the author believes that "no operation will cure cancer," although it will often retard active development; the greatest mistakes are often made in the after-constitutional treatment of patients. The effects upon the organism of selenium and tellurium are discussed. Preparations for cleansing, deodorizing, and disinfecting cancerous lesions of the skin are given.

Minor Maladies and Their Treatment. By LEONARD WILLIAMS, M.D. Fourth Edition. New York: William Wood and Company. 1918.

The fourth edition of "Minor Maladies and Their Treatment" exhibits changes consistent with the author's progressive attitude toward medical science. Prevention, rather than cure, is the aim of modern investigation. This book presents the importance of studying the field of the internal secretions, the endocrine glands, in

forestalling many serious diseases. The causes of colds, coughs, and sore throats—namely, irritation and microbe invasion—the methods of avoiding them are explained. The condition of pretuberculosis is discussed. A chapter devoted to indigestion considers those forms of dyspepsia which are not of organic origin; gastric digestion is considered in the light of the researches of Pawlow and others. Remedies for constipation, diarrhea, vomiting, and giddiness are suggested. Other topics discussed include rheumatism, neuralgia, headache, goutiness, old age, insanity, drugs, and general health. Minor glandular insufficiencies are mentioned, with reference particularly to thyroid medication. This volume is of unusual practical value because it deals with the matters about which a physician is most frequently consulted.

A Text-Book on Gonorrhea and Its Complications. By DR. GEORGES LUY, Late Assistant to the Urological Clinique, Hôpital Lariboisière, Paris, Prisesman of the Faculté de Médecine, Paris, Chief Medical Officer of the Urological Center at the Military Hospital, Versailles. Translated and Edited by ARTHUR FOERSTER, Capt. R.A.M.C. (T.C.), M.R.C.S., L.R.C.P (Lond.), Late Resident Medical Officer, London Lock Hospital. Second Revised Edition, with 201 illustrations and 3 colored plates. New York: William Wood and Company. 1917.

The first edition of this book was reviewed in these pages about four years ago. The present edition, published after that interval of time, is essentially the same book as its predecessor, and has evidently been published more because its previous edition had been exhausted than for any radical changes or additions made necessary to bring the book up to date. With a few minor additions then, the book remains the same, and is, as was the first edition, one of the best practical text-books on gonorrhea in the English language.

The Diagnosis and Treatment of Venereal Diseases in General Practice. By L. W. HARRISON, D.S.O., Lieut.-Colonel, R.A.M.C.; Lecturer on Venereal Diseases and Officer in Charge, Military Hospital, Rochester Row. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E. C. 1918.

This is a practical and in some ways, an unusual book. In about 450 pages, Colonel Harrison has managed to consider the several venereal diseases, both as to their general characteristics, and as they manifest themselves in the different parts of the body. He has also found space to discuss various special, and always

practical, matters pertaining to the diagnosis and the treatment of these diseases. There are, for instance, chapters on "The Equipment Required for Diagnosis and Treatment," "The Taking of Specimens for Laboratory Examination," "The Interpretation of Laboratory Required for Diagnosis and Treatment," "The manifestations of these diseases in women and children.

The book comes to us from the pen of a clinician and surgeon in charge of a British Military Hospital. It is essentially a practical book, and one which will prove of great value to those who have to fight venereal diseases in these times, when they not only "provide a field for scientific research which is of surpassing interest, but they levy a toll on our national resources which cannot be ignored" (author's preface). The book is well printed, and fully illustrated with both photographs and excellent colored prints.

Dream Psychology. By MAURICE NICHOLL, M.B., Capt. R.A.M.C. Henry Frowde, and Hodder Stoughton. 12mo. pp. 188. London: Oxford University Press. 1917.

The theories of Freud as to the significance of dreams as the expression of an unfulfilled or repressed wish are well known. Jung has also taken up the study of dreams, and has reached very different conclusions. In this book the writer sets forth the theories of Jung in a very convincing way. Undoubtedly, dreams often arise from the unconscious, and frequently much information about the dreamer's interests and conflicts can be obtained from their study. While Jung admits that the manifest content of dreams is composed of symbols, he rejects Freud's narrow and fixed symbolism, and this is dependent upon a fundamental difference in theory, in that he denies the view that the unconscious is chiefly the storehouse of repressed ideas and wishes, the matter of which is chiefly, or entirely, sexual in origin, and, therefore, he finds unnecessary Freud's fantastic theory of an opposing factor in consciousness, which he calls the moral censor. The author gives an excellent illustration of this difference, not in a dream, but in the mental state of an author seeking to give expression to a feeling in himself by a single word, and the subsequent feeling of relief, after many unsuccessful attempts, when the suitable word is suddenly found. The feeling of displeasure during the search arises not from repression, but from non-expression, not as Freud would explain it, from a barrier connected with repressed sexuality.

The application of this theory of opposition to expression of interest, showing itself in dreams and in many forms of psychoneuroses, is clear and very apt, and a study of this book by physicians cannot but be found helpful and useful.

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SOME OBSERVATIONS ON THE PERSONALITY OF FEEBLE-MINDED CHILDREN IN THE GENERAL POPULATION.

THE United States Public Health Service has recently published as Reprint Number 467, from the Public Health Reports, an interesting article dealing with "Some observations on the personality of feeble-minded children in the general population," by Walter L. Treadway.

In studies of school children with reference to mental development, the investigations made by the Public Health Service emphasize the necessity of making careful studies of those children who grade below the normal limits as to intelligence. Children in this group show greater differences in make-up or personality than children in the normal group. It is not sufficient to grade the children in any school by formal psychological tests.

In making studies of the mental development of any group of children the formal psy-

chological tests may be relied upon to grade the intelligence. But those children who grade below certain normal limits or who by their conduct show unusual traits of character should be studied more carefully by one having psychiatric training.

Investigations conducted by the Public Health Service have afforded the opportunity to grade, by the Binet-Simon scale, the intelligence of a large number of rural American school children, white and colored, and of some immigrant children. The results showed a considerable variation in the degree of intelligence among mentally normal children.

Binet and Simon, in discussing the psychology of the feeble-minded child, claim that he does not resemble a normal child whose mental development is simply retarded. In the case of the former, the retardation has not been uniform, showing as an end-result a greater development of intelligence in some respects than in others. Binet and Simon, therefore, conclude that the mental equipment of the feeble-minded lacks equilibrium or proper balance. They also state that feeble-minded children who are assumed to resemble, by reason of retarded intellect, much younger normal children, show defects of reasoning, understanding, and imagination which do not appear in the latter. These authors are of the opinion that the mental characteristics of the feeble-minded child show individual peculiarities of a pathologic kind.

It is necessary to turn to psychiatry for a guide to the understanding of collective reactions as observed, either habitually or episodically. By means of psychiatric approach, the differences of personality as recognized in the feeble-minded children may be better understood. To illustrate the plan for psychiatric study and the tentative classification of feeble-minded children, the author discusses five types, and a few case histories obtained in the course of surveys of the Public Health Service are presented.

The first of these is the type which shows "shut-in" tendencies. This class is reticent and seclusive, and often sensitive, stubborn and hard to influence. Another type of individual may show manic-depressive reactions, originating in mood disturbances. This type shows emotional variability and fluctuations in capacity and efficiency sufficiently marked to attract attention. A third type resembles those

showing the manic-depressive reaction. These people have considerable difficulty in adapting themselves to conventional standards.

The next type of personality observed to interfere with proper adaptation to environment has been called the "epileptic temperament." In this character, two qualities dominate,—egotism and an inclination to piety. These people find it difficult to adjust themselves to discipline. Frequently representatives of this group are prone to be cruel. Still another type of reaction occurs in persons possessing an exceptionally retarded intellect. These individuals show a fatuous temperament. They are self-complacent, silly, stupid, and often develop psychoneurotic reactions.

From this study the following conclusions are drawn:

1. In addition to certain formal psychological tests the children who grade below certain normal limits, or who show certain unusual traits of character, should be studied by psychiatric methods.

2. Certain constitutional traits occur with sufficient frequency in the mental defectives to warrant their being recognized as types for future study. The following tentative classification is suggested: (a) those with shut-in tendencies; (b) those with manic-depressive-like reactions; (c) those allied to the manic-depressive group; (d) those who show the egotistic and epileptic temperament; and (e) those who show a fatuous temperament.

3. Constitutional traits must be taken into account when making a diagnosis of mental deficiency, or feeble-mindedness, as it is more often termed. Future studies in the field may show that they are of practical value in differentiating the mentally defective child from one merely retarded.

4. A knowledge of psychiatry is an important requisite in the diagnosis of feeble-mindedness. This becomes of more importance when it is realized that a close relationship exists between psychic disorders usually regarded as insanity and the higher types of mental deficiency or feeble-mindedness.

5. The recognition of these constitutional traits will permit a better understanding of impure or atypical cases in mental medicine and, furthermore, offer a means of recognizing antisocial traits in the mental defective before society has paid the penalty of their inherent antisocial tendencies.

6. The understanding of these traits permits, early in the career of the feeble-minded, the inauguration of prophylaxis which may serve to prevent much sorrow and disgrace to their immediate families; first, by segregating certain types in institutions early in life, regardless of the financial status of the family, and second, by replacing through early training vicious tendencies which the feeble-minded child easily adopts and which are not readily overcome when once developed.

HOW INDUSTRIAL FATIGUE MAY BE REDUCED.

THE United States Public Health Report issued for August 16, 1918, contains an important article dealing with the problem of industrial fatigue. Investigations have been made in factories that are manufacturing war supplies, for the purpose of determining whether unnecessary fatigue is present and discovering the conditions under which a maximum continuous output may be obtained.

In the present emergency caused by the war it is desirable to understand all practicable ways by which industrial work may be made more efficient and output may be increased to a maximum without resorting to unwise or burdensome demands on labor. It is often possible to increase output temporarily by increasing the work of the employee, but if he is overworked his output soon falls off; hence such a method, if carried far, quickly defeats itself and in the long run is not profitable. Given adequate equipment, adequate administration of the plant, and a proper spirit among the employees, fatigue is the greatest single obstacle to a maximum output. Fatigue diminishes output not only directly, but indirectly, by increasing accidents and the proportion of spoiled work and by causing sickness and absences of employees. It will, therefore, be profitable to employers, to employees, and to the Nation, to inquire into the ways by which fatigue may be reduced.

A certain amount of fatigue is the normal result of bodily activity and is harmless. Over-fatigue may be caused by the conditions of work inside the factories or by the habits and conditions of living of the workers outside the factories. Fatigue may be detected by

various tests, such as keeping a record of the output of the individual employee, by observing the amount of electrical or other power consumed, and by noticing the amount of spoiled work and the number of accidents. There are, also, various laboratory tests dealing with muscles, the nervous system, sight, hearing, and certain chemical changes within the body, which aid in determining fatigue.

In dealing with the problem of reducing fatigue caused by work inside factories, there are several measures which may be adopted with advantage both to the worker and to the output. Rest periods are necessary, obligatory, and not discretionary on the part of the workers. A little food or a cup of tea or cocoa taken at such a time is often remarkably restorative. Introducing variety into industrial work is another means of diminishing fatigue. Adjusting the speed of machines to an average pace, omitting unnecessary motions, and providing adjustable seats, all tend to procuring least possible waste of energy and time.

The ventilation of workrooms is an important aid to efficiency and should conform to the principles of ventilation now accepted. The recent investigation of ventilation has demonstrated that excessive heat and humidity should be avoided so far as possible, and that air should be kept in motion. When the worker is in a hot room, and especially when heat and humidity are combined, his bodily temperature rises, often several degrees, and he is put into a feverish state. While movement of the air will not cool the air, it will cool the skin and hence will keep down the bodily temperature to the healthful level. If possible, windows should be wide open; but where this is not possible and wherever, even with open windows, the heat of the workrooms rises above 68°, forced drafts or electric fans should be used to keep the air in motion. It is astonishing how easily a comfortable and refreshing bodily condition may be maintained by the use of electric fans. Air currents should not, however, be too strong. Bodily discomfort is caused by excessive drafts, and a gentle movement of air is the most effective. Uniformity in the play of air on the skin is undesirable; an oscillating electric fan or a frequent change in the rate of forced drafts gives the best results.

Certain general sanitary conditions, such as adequate lighting, an exhaust system to remove fumes and dust, abundant drinking water, attractive, quiet rest rooms, lunch rooms, and washing facilities are also important in increasing efficiency.

The industrial urgencies of the war have caused many factories to run both day and night. Man is not naturally a nocturnal animal, and night work must always be regarded as inadvisable on physiological grounds. Lack of sleep produces fatigue, and the sleep of night workers is likely to be curtailed. Where night work is unavoidable, fatigue can, to some extent, be lessened by allowing the workers to alternate at intervals between day and night, the periods to be not less than one month in duration.

In regard to the number of hours of labor, evidence favors a reasonably short working day, even in the interests of the industries themselves. Overtime and Sunday work should be avoided.

Fatigue resulting from the work inside the plant will appear sooner and be a more serious hindrance to output if the worker is not in a sound condition of body and mind when he comes to his task. Anything which an employer can do outside the plant to promote bodily health and vigor and mental contentment is in the long run profitable. It aids in securing a higher class of workers, greater loyalty to the company, a lessened labor turnover, greater skill, and greater general efficiency. Modern housing, attractive home surroundings, opportunities for healthful recreation, club facilities—whatever will keep workers away from the saloons and other places deleterious to health—are all safeguards against industrial fatigue.

MEDICAL NOTES.

INFLUENZA IN SWITZERLAND. An epidemic of influenza, or "grippe espagnole," has been widely prevalent in Switzerland during the past two months. At the beginning of July the severity of the attacks suddenly increased, and fatal cases are being recorded daily in many cantons, especially Berne, Basle, Lucerne and Zurich. In Berne the civilian population has been attacked to one-fifth or more of its

total number. At Chateau d'Oex 6 out of 250 English internes are reported to have succumbed to it, and among Swiss soldiers the official bulletin recorded 11,000 cases with 305 deaths down to July 15th. The American Red Cross has voted a sum of \$100,000 to provide better accommodation for sick soldiers, a large hotel at Interlaken having been secured for convalescents. The symptoms are those generally associated with influenza, but of a severe type, pneumonia being a common complication. In canton Vaud notification has been made compulsory, meetings are forbidden, and no visits allowed to patients in hospital. The medical profession has not escaped, and a certain number of fatal cases are reported, among them Dr. Steiger, first assistant to Professor Eichhorst in the cantonal hospital at Zurich.

PESTILENCE SWEEPS NORTHERN RUSSIA.—Famine, typhus, and cholera are raging in the northern provinces of Russia. The population of entire villages are dying in great numbers. In some places, each person receives only two pounds of oats weekly and no bread. Railway connections between Moscow and the rest of Russia, except the provinces of Tver and Tula, have ceased entirely.

SEALE HAYNE NEUROLOGICAL STUDIES.—The first number of the Seale Hayne Neurological Studies is about to be published by Mr. Humphrey Milford, Oxford University Press, and that will be followed by issues every two months. The editor is Major Arthur F. Hurst, M.D., F.R.C.P., officer-in-charge of the Seale Hayne Military Hospital, Newton Abbot, assisted by Capt. J. L. M. Symms, Capt. W. R. Reynell, and Lieut. S. H. Wilkinson. The forthcoming part contains six studies on hysteria, and articles on the rapid cure of hysterical symptoms in soldiers, and on war contractures.

WAR NOTES.

RED CROSS TO HELP IN MANCHURIA.—Four American Red Cross doctors have gone to the Manchurian front to investigate refugee and civilian relief conditions. They will establish an evacuation hospital near the front. The surgical department of the Harbin military hospital has been taken over by the Red Cross unit. This building has been occupied and Surgeon Logan placed in charge, with seventy wounded Czechs as patients. This hospital will be equipped as a

base hospital containing 300 or 400 beds. The Russian hospital in Vladivostock is in full operation.

EMERGENCY HOSPITAL.—The location of the emergency hospital on Commonwealth Avenue, in the Commonwealth Armory, has been pronounced by Secretary Baker as unfit for use by the War Department as a convalescing station for wounded soldiers. In reply to Governor McCall's offer of this building, Secretary Baker is reported to have written the following letter:

"Please let me thank you most heartily, and through you, the people of Massachusetts, for your very kind offer of the Emergency Hospital for the use of the medical department.

"Fortunately, just at the moment, the medical department seems to be rather well provided for in Boston, and it has already arranged for the use of the Peter Bent Brigham Hospital, and, as you know, the Elks are building a hospital of considerable size adjoining the Robert B. Brigham, and it is believed that these two hospitals, administered as one, will take care of the needs of the present. It is quite probable that at some time in the future it may be necessary to have other hospitals in the vicinity of Boston, but even then the Emergency Hospital will hardly meet the requirements, because such a hospital should be located where the patients can have plenty of fresh air and sunshine and the privileges of out-of-door recreation. In other words, the hospital should be located out of the city.

"However, your offer, I want you to understand, is very highly appreciated.

REST ROOM FOR NURSES.—To give Army and Navy nurses a comfortable place for their hours off duty, the American Red Cross will provide special recreation houses at all large base hospitals, to cost about \$350,000. Contracts have been let for forty, several of which are completed, and some more are under contract. The building, similar in architecture to the convalescent houses for soldiers, though smaller, provides a large and comfortable lounging room, attractively furnished, and a dining room, kitchen and laundry. The large room will be supplied with easy chairs and couches, tables, writing desks, piano or phonograph and special library. A complete equipment of dishes, linen, sewing machines and utensils will be available in the service end of the house. The nurses may prepare special dishes or serve meals for themselves and their friends or make or launder garments when necessary.

These houses were provided as soon as it was learned that the nurses had no attractive rest rooms and were obliged either to stay in their bedrooms or to sit in a narrow, corridor-like space set aside for them. In some camps, the Red Cross not only has provided these houses, but has secured cottages in the mountains or at the seashore where nurses especially in need of rest can go for a recuperative week end. The nurses keep house for themselves. At hospitals inaccessible by trolley, the Camp Service people put Red Cross cars at the disposal of nurses who wish to get away for an hour or two from scenes of sickness. These plans are carried out with the approval of the military authorities who report that these recreational measures play an important part in keeping the nurses happy and efficient.

ARMY HEALTH EXCELLENT.—Health conditions among troops in the United States during the week ending August 16 continued excellent. The death rate was 2.71, a decrease from the previous week. Total deaths numbered 119.

LOWELL DOCTOR INJURED IN LONDON AIR RAID.—Dr. John F. Daly of Lowell is recovering in London from wounds sustained in a house which was struck several months ago by a German bomb from an airplane. Dr. Daly received his medical degree from Tufts Medical School. He had been in the front ranks for some time before returning to London where he was injured.

WAR RELIEF FUNDS.—On August 26, the totals of the principal New England War Relief Funds reached the following amounts:

Belgian Fund	\$686,724.49
French Orphanage Fund .	397,415.51
French Wounded Fund ..	394,169.25
Armenian-Syrian Fund ..	311,276.14
Italian Fund	198,073.10
LaFayette Fund	41,916.23
British Fund	14,488.63

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending August 24 the number of deaths reported was 193, against 194 last year, with a rate of 12.83 against 13.10 last year. There were 46 deaths under one year of age against 46 last year.

The number of cases of principal reportable diseases were: diphtheria, 28; whooping cough, 31, scarlet fever, 13; typhoid fever, 1; measles, 17; tuberculosis, 49.

Included in the above were the following cases of non-residents: diphtheria, 2; whooping cough, 1; scarlet fever, 1; measles, 1; tuberculosis, 6.

Total deaths from these diseases were: diphtheria, 3; whooping cough, 3; tuberculosis, 49.

Included in the above were the following non-residents: diphtheria, 1.

Miscellany.

DECLINING BIRTH RATE.

THE significance of the declining birth rate as a menace to all civilized nations is discussed in a recent address by Louis J. Dublin, Vice-President of the American Association for Advancement of Science. The address begins:

"It is a custom of this section, I believe, for the retiring vice-president to select for his address a subject of national interest in the field of social economy. He is expected to avoid narrow and technical discussion of specialties, but he may properly summarize the important works of other investigators in specialized fields to show their trend and bearing, and he may also point out the direction which further research should take. These requirements of the occasion are all the more necessary now, in view of the circumstances under which we are living. We are going through a period of serious conflict. Our Nation is at present engaged in concentrating its resources of men, of materials, and, above all, of thought to make itself felt in the world struggle for preserving civilization. This is no time for trivialities or for small detail. Under these conditions the Section on Social and Economic Science of the American Association may be expected to have a message of national import. It would be almost common to take your time and attention for anything but a topic of the widest practical significance in the present national emergency.

With these considerations in mind, I have chosen as the subject of this address the significance of our declining birth rate. I have done so with considerable hesitancy, because of the difficulty of the subject and the importance of its present lesson. I shall count also on your forbearance, hoping that you will forgive the incompleteness and sketchy character of my argument. The study of American demography has convinced me that we are concerned with a problem of the greatest possible moment. Changes have been progressing in the internal

structure of our population which have, for the most part, escaped attention and which, if allowed to continue, will result in very serious national embarrassment. Conditions of war bring into relief the necessity for a vigorous and efficient population. It is not too much to say that the present tendencies in our national and family life are such as seriously threaten the development of those groups in the population on which we must rely for vigor and efficiency in thought and action.

The declining birth rate has received but little scientific attention in the United States. It has been, however, the subject of very careful investigation in Europe. During the last 50 years the birth rate has declined in virtually every country of the civilized world. Some countries have been affected more than others, but the phenomenon has been observed in extreme form in one country, namely, France. France has made an experiment in birth control on a national scale. All the parts of that experiment, including the end-result, are now on view and available for scientific observation and comment. Before the present war, France had already reached a point where her birth rate had decreased to a point below her death rate; her population was actually decreasing. But for 10 years before that time the approaching crisis had called for the careful attention of her best minds.

A commission on depopulation, composed of statesmen and sociologists, was appointed to study the problem, and a comprehensive report on the sources of depopulation was prepared. This report is too elaborate for detailed description here. I shall rather present the situation for France, as I understand it, in broad outline, bringing into relief only the main findings of the commission.

Let us consider the growth of population during the last century in the three leading countries of Western Europe, namely France, the United Kingdom, and the States composing the German Empire. At the beginning of the nineteenth century France was the leader of the three countries, with a population of about 29,000,000. The States which now compose the German Empire were second, with a population of about 23,000,000, and the United Kingdom stood third, with a population of about 18,000,000. A century later we find the situation totally changed. The German Empire headed the list with a population of nearly 65,000,000; the United Kingdom was second, with a population of 45,000,000; and France was third, with a population of only 39,000,000. In other words, while the population of the German Empire had nearly trebled and the United Kingdom had increased to two and one-half times its earlier numbers, the population of France had increased less than one-half. Further inspection of the figures show that a marked change in the rate of increase of the

population of France occurred about the year 1860. At that time France was still in the lead and had already reached a population of 37,000,000. After that date it increased only 2,000,000, while Germany in the same period almost doubled in population. In 1811 the population of France constituted 16% of all Europe. One hundred years later the French population constituted only 9% of the total.

This situation for France may be accounted for principally in terms of its declining birth rate. Such figures as I have for France show that at about 1830 the rate was 30 births per 1000 of population. The last available figure for 1914 was 18 per 1000; the death rate was 19.6 per 1000. This was the first war year, but already in 1911 the death rate, 19.6, exceeded the birth rate, 18.7. The reduction of more than one-third in the birth rate during the 80 years was both gradual and continuous. On the other hand, the birth rates in the German Empire and in the United Kingdom continued high, over 30 per 1000 up to 1895 in the latter and up to 1909 in the former. Since then the birth rates have declined rapidly in both countries, but the enormous increase in population for both Germany and the United Kingdom was achieved before the changes in the birth rate began to make themselves seriously felt.

We are not concerned entirely with gross totals of population. Equally significant is the internal structure of population. As we shall see later, changes in the constitution of a population almost invariably appear with changes in the birth rate. This will become clearer by comparing the ages below which one-quarter, one-half, and three-quarters of the total populations of Germany, of England, and Wales, and of France, respectively, are found. Thus, one-quarter of the population of Germany is under age 11, one-quarter of the population of England and Wales is under 12 years of age, whereas one-quarter of the French population is under age 14 years. Again, one-half of the population of Germany is found under 23.5 years, one-half of the population of England and Wales is below 26 years, while one-half of the French population is below age 30. We find, finally, that three-quarters of the population of Germany is below age 41 years, of England and Wales is below 42 years, and of France is below 49 years. These figures show clearly that the average age of the French population is considerably higher than that of the other two countries. Its youth and its strength form a smaller part of its total population, while its old and its dependents form a much larger part. This, as we shall find, is an invariable consequence of a decreasing birth rate, which reduces the proportion of the young and thus brings into relief an undue proportion of the aged.

The declining national birth rate of France is also severely selective in character. The reduction of the birth rate has affected mostly those who are both economically and socially best fitted to bear and to raise a family to maturity. A careful classification by Bertillon of the number of children per 100 families in Paris shows that the very poor have the largest number and the very rich the smallest number of children. The order of size of the family is invariably the reverse of the order of economic condition. Since economic status is highly associated with efficiency and social worth, low birth rates in the best equipped groups of the population can have but one effect in the vital constitution of the next generation, namely, a decline in constructive effort for national development.

Evidence suggestive of such decline in national development is afforded by the fact that coincident with a rapidly declining birth rate France has had a high and rather stationary death rate during the last quarter of a century. England, through the development of its public-health service, reduced its death rate to under 14 per 1000 in the year before the war (1913), when France had a death rate of 4 per 1000 higher. In spite of the low French birth rate, the infant mortality rate has not been low and has been coupled with a high still-birth rate. The death rate from tuberculosis in France has recently come into public notice here because of war conditions, but it was high before the war."

Mr. Dublin then points out the indifference in France to the obligation of maintaining high standards of public health, as is shown by her unsatisfactory birth rates. In England, the last few years have shown a decline in birth rate, although it has been accompanied by a decline in death rate. In England, as in France, the birth rate is greater as the economic and social status is lower; this is due to the voluntary restriction of childbearing. A further disturbing element in the situation in England is the internal change in the population. Because of the decreasing birth rate, the average age of the population is rising, and the increased longevity of its constituents is not re-enforced from its youth, for the supply of infants diminishes relatively to the rest of the community.

In the United States, the situation is superficially a favorable one, for the total birth rate shows an increase of one per cent. annually. The difficulty with the American situation is that the native stock is playing an ever smaller part in the composition of the total population; the increase in our popula-

tion is due to two factors: immigration and a high rate of increase in foreign born. Statistics show pronounced selection in the decline in native birth rate. The race stock which founded our institutions is no longer maintaining itself, and its place is gradually being taken by foreign elements. Additional evidence of the selective character of declining birth rate is presented by the study of families of college graduates and men of science. In order that the native population of the United States remain stationary, the average number of children per family must be nearly four. By the conscious limitation of births among families of the best blood of America, our national standards are being leveled to meet the lower quality of our population.

In suggesting a remedy for the situation, Mr. Dublin says in conclusion:

"The State is largely responsible for the present condition. The system of education which it has provided for the youth of the country has failed for the most part to inculcate national ideals. Our young people have grown up without a broad outlook on life. They have been taught to think in terms of personal convenience and advancement, and not in terms of the common good. Democratic education is a failure if it neglects to make provision for the character of its future citizenship. Our young men and women must be taught to realize early that we do not live for ourselves; that our intellectual, economic, and social advancement must be carried forward not only as tradition but more especially in terms of new, vigorous, and worthy personalities. Our educational system must make our various racial groups conscious of their best traditions and instill desires to see their better strains strengthened and increased as a foundation of the greater democracy of the future.

The education of our women is especially faulty in this regard. Our schools and colleges, with few exceptions, direct the thoughts and energies of our girls away from ideals of normal home life and center them upon personal refinement or upon personal ambition. It is no uncommon thing to find that girls have gone through their entire college course without a single occasion when the subject of their place in society as mothers and wives was given serious consideration. No wonder that our educated women think mainly of 'careers' or of pleasures offered by society as the aim of existence. These are all false gods which smother the natural and wholesome instincts which every species possess to insure its maintenance. The old virtues of womanhood need restatement today. Whatever else women learn in the schools they must be educated for their place as mothers, and democratic educa-

tion must make efficient provision for this primary function.

The State is guilty of another sin. It has made no provision to reward, either substantially or with esteem, the women who, realizing their obligation to the State, are willing to bring up families of normal size. The bearing and rearing of children is costly, both in energy and in funds, and must act as a check on personal ambition and on the enjoyment of the freedom and pleasures of social life. A family of four children requires all the attention of the thoughtful and capable woman. Her success as a mother will be at the expense, in the majority of cases, of her achievement in other fields. It is not asking too much that such a woman should be favored with the admiration of the community in which she lives and not, as at present, with its commiseration and pity. The State may find it expedient, likewise, to encourage parenthood by considering the size of the family as a factor, among others, in fixing exemptions from taxes.

Individual selfishness is at bottom the source of the evil I have described. An increasing number of men and women do not assume the marital state or, when married, do not raise a family of children because they prefer to live better than their forbears and to spend more on themselves than would be possible if they had children to raise and educate. Under present conditions children are not an economic asset. Restrictive compulsory education and child-labor laws make children an expensive luxury which only the poor can afford. In fact, there is no very good reason, on the score of personal comfort alone, why individuals should assume the obligations and sacrifices which large families entail. Such, indeed, is the logical conclusion of our growing materialism.

Yet the shallowness of this attitude must be obvious. Men and women who today are rallying to the defense of the country in war-time need not be reminded that we live not for ourselves but rather for the fuller life of the community. If only the same spirit would animate us in times of peace, more would then meet their obligation to the state through parenthood. A new citizenship would then arise which would be worthy to receive the noble traditions from our past and to carry our civilization forward into the future. Our appeal must be made to the religious impulse in our individual lives. It will require all the religious power latent in our people to set us right. I do not mean the mandate of any particular religious sect, but rather the ethical force which arises within us when we realize clearly our relation to the community about us and the obligation which this relationship involves. The problem of the size of the family, like a whole host of other important social questions, will be solved only when men realize

the holy purpose of life, that we are here to add to the sum total of the common good; in a word, that we must leave the world better than we have found it.

In conclusion, let me emphasize the need for birth release among the healthy and normal people of our country as a primary national duty. Such release must be conscious and deliberate, the act of will of free individuals who thus express a highly moral purpose."

Correspondence.

"KISSING"—A FUNCTION.

Lynn, Mass., Aug. 20, 1918.

Mr. Editor:—

On Saturday morning, August 17, 1918, there appeared on the front page of the *Boston Post* a very short paragraph in which the New York Board of Health gave gratuitous advice to the public on "kissing." The method they advocate, and which they say is prophylactic in Spanish influenza, is one which is not at all likely to appeal to the public because it substitutes a make-believe for the real thing. They advise "kissing through a handkerchief." They do not state the kind of handkerchief, the way it should be used and whether or not it could be used more than once. In giving advice to the public it is wise to be explicit and give definite directions which can easily be followed. These directions need not necessarily be accompanied by diagrams or practical demonstrations, but can be cited in language that anyone may read and understand.

Handkerchiefs are made of different material and different qualities of the same material—silk, linen, cotton, etc., and the porosity depends on the material and quality. The porosity can be estimated easily by a low power magnifying glass. Handkerchiefs are used for different purposes; the most important being a receptacle for nasal secretions. As a rule, one is in use but occasionally more than one is carried.

In order to estimate the value of the handkerchief as a prophylactic, it is necessary to consider the "Influenza Germ." Its average length is about $1/25000$ " and its average breadth $1/150000$ ". These germs are so small that about 30 could pass sidewise, and about 180 directly, through any of the meshes of an ordinary handkerchief. Those germs which do not pass through will, in all likelihood, be entangled in the material. The handkerchief would then be returned to the pocket or pocketbook. The longevity of the germs being 24 to 48 hours, the handkerchief, if again used for the purpose above mentioned, would not be much of a prophylactic.

The "Influenza Germ" generally occupies the nasal cavities and naso-pharynx, and finds exit by these passages more readily than by the buccal cavity.

A handkerchief used as it is generally used, then applied as the New York Board of Health advises, would be a first-rate carrier instead of a prophylactic. If the New York Board of Health desires to advocate prophylaxis in this disease, why does it not adopt modern methods and advise osculation of the cheek instead of the lips? Most women and some men carry enough antiseptic face powder to kill any pathogenic germs emanating from the mouth.

The French fashion in this, as in other things, is good.

A. McROBBIE.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

MEETING OF THE SECTION OF SURGERY, JUNE 18, 1918.

SUSPENSION AND TRACTION TREATMENT OF FRACTURES IN BASE HOSPITAL WORK.

By G. A. MOORE, M.D., BROCKTON, MASS.

MILITARY surgery of today is a product of the present war. The methods of treating wounds in previous wars have been discarded for more efficient ones to meet modern needs. The constant improvement and modification in weapons of destruction result in a great variety of wounds which stimulate the introduction of new methods of treatment.

As a result of the great development of the use of high explosives and the number of pathogenic bacteria in the soil on the western front, the present war presented at its outset new problems in the care of fractures, demanding new methods of treatment.

Briefly these new conditions are:

1. Great laceration of soft parts and comminution of bone.
2. Frequent injury to nerves.
3. Extreme virulence of infection of the

majority of wounds which necessitate prolonged treatment, wet dressings, and immobilization.

A method of treatment or apparatus to enable us to care for such injuries should fulfil certain requirements:

1. There should be easy access to the wound and the entire limb, so that the wound can be dressed and the limb inspected without disturbing the fracture.
2. The patient should be able to move about in bed and have the usual nursing care without interfering with the alignment of the fragments of the bone.
3. Good circulation should be maintained in the injured limb and all edema avoided.
4. Mobility of the joints of the limb must be maintained throughout treatment to prevent ankylosis.
5. The apparatus should be applicable to any fracture, enabling one to obtain sufficient traction to prevent overriding of fragments, to maintain correct alignment and to rotate the broken bones in their proper planes.

Before discussing the shortcomings of immobilization of fractures in war wounds with the types of splints and plaster casts in vogue in civil practice, a word should be said regarding bone plates, Parham bands, and wires for maintaining bone fragments in reduction. These methods, especially bone plating and

wiring, have been used much more than they merited in the present war, but of late they have been used only in rare cases. Plates are dangerous as the screw holes open new avenues of infection to the medulla. Parham bands and wires about fragments of bone, by constriction, hasten necrosis of the ends, in the presence of infection, become loose and are then of no value.

In regard to splints: any form of splint which depends upon the use of tight straps for its proper application, constricts the limb, interferes with the already poor circulation and increases edema. Apparatus having lateral and posterior splints has to be completely removed to dress the wound or inspect the limb, at which time alignment of fragments cannot be maintained. The usual nursing care with such apparatus disturbs the fragments. The splints cannot be applied satisfactorily on account of large dressings. Ankylosis is a common sequela as the joints are immobilized. Strong traction is required, as much of the pull is lost by the limb resting upon the bed.

Plaster casts are difficult to apply in the type of fractures seen in base hospital work. The wound must be carefully bridged with iron rods to expose the wound and permit dressings. Casts are soon soiled and become foul from the wet dressings and discharge from the wounds; and owing to the small area exposed it is impossible to know if sepsis is spreading.

To eliminate the difficulties met with in the treatment of fractures in base hospitals the Suspension Traction method was introduced at about the same time, September, 1914, by Hey-Groves of London and Joseph Blake, who was then at the American Ambulance Hospital at Neuilly. Hey-Groves used this method first for fractures of the femur and Blake for fractures of the humerus.

Before describing in detail the Suspension-Traction method as it is applied at present, it may be of interest to take up briefly the development of this method from the time of its introduction to the present.

The earliest mention in the literature of its use was an article published in 1826 by Dr. Smith, Professor of Surgery at Yale. He had been treating fractures of the femur by this method since 1810.

Following Professor Smith's pioneer work, his son, Nathan R. Smith, published an article

in 1830 on a new splint for suspending the lower leg. This was made of two boards, one for the leg, the other for the thigh, moulded into the form of troughs with bandage stretched across the top, on which the leg rested. This splint was jointed at the knee and the lower half suspended in bed from barrel hoops. Several years later he devised the anterior wire splint for suspension, to which his name has since been attached and which has frequently been mentioned as the first suspension splint. (See Fig. 1.)

In 1856 Damoiseau of Paris published an article describing a bed for the suspension-treatment of fractures. This was rather complicated and worked by means of windlasses and pulleys. One of these beds I saw in use in a French hospital. In 1857 Denucé of Bordeaux described a method of traction which resembled the Liston side splint and a suspension apparatus similar to the Bradford frame, which had been in use in France for some time.

During the Civil War, Hodgen introduced the splint which has since borne his name, and which with adaptations from the Thomas splint is used in a great many base hospitals in the present war. The original Hodgen splint (see Fig. 2) was a Smith anterior splint spread out to permit it to slip down over the leg. The leg was suspended in the splint by bandages passing under the leg and pinned to the lateral rods of the splint. It was bent slightly at the knee and suspended by cords attached to the ceiling. Traction was obtained in part by adhesive bands attached to the leg and stretched over the foot of the splint and also by the pull of the suspension cords, which were attached above the bed in such a way that they exerted a pull at an oblique angle towards the foot of the bed.

There is very little in the literature about the early use of the Thomas splint. In 1878 Rushton Parker mentions it as a common method of treating fractures.

In connection with methods of suspension and traction, the Verity frame and the St. Pierre Gibson splint should be mentioned, though neither apparatus ever came into popular use. Both were introduced about 1880. With the Verity frame (Fig. 3) the entire body was suspended, while traction was made upon any limb desired. The Gibson splint (Fig. 4) was a rather ingenious device made of iron rods by means of which the leg below

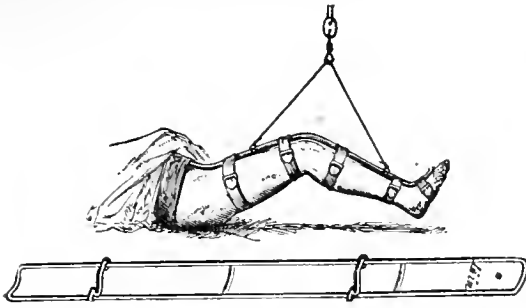


FIG. 1.—Nathan R. Smith anterior splint for suspension.

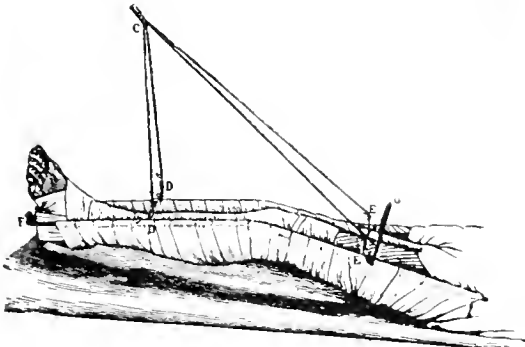


FIG. 2.—Original Hodggen suspension splint. Note the slight flexion at the knee and oblique pull on the upper part of the splint.

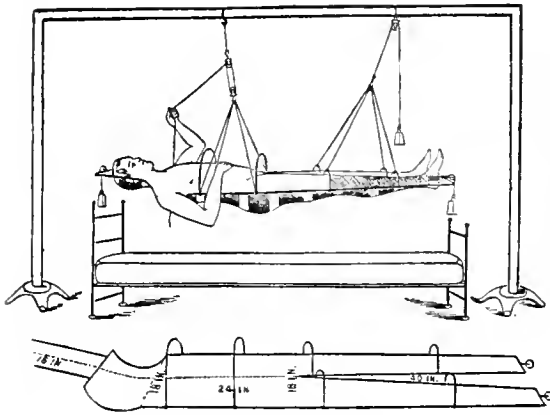


FIG. 3.—Verity frame.

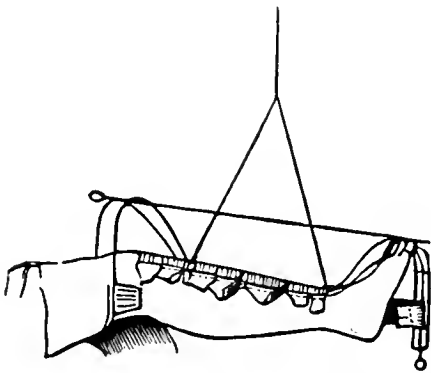


FIG. 4.—St. Pierre-Gibson splint for suspension, extension and counter extension of the leg.

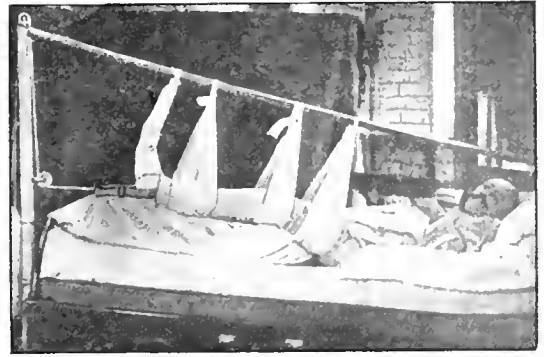


FIG. 5.—Florschütz method of suspension and traction.

the knee could be suspended while traction and counter-traction were made with the splint.

Except by a very few surgeons the Hodggen splint and suspension methods of treating fractures were abandoned from the close of the Civil War to the first months of the present war.

The first apparatus for suspension and traction described by Hey-Groves was the Florschütz method, which had been used to some extent in Vienna (see Fig. 5). This apparatus consisted of a post attached to the head and another to the foot of the bed with a bar extending between them. The leg was then suspended from the overhead bar by means of wide bands of canvas or heavy sheeting above and below the knee. Traction was produced similar to the method used in Buek's extension. There were no splints used with this apparatus.

Blake's first use of this method in the present war was in the treatment of badly infected fractures of the shaft of the humerus and those involving the elbow joint. The structure from which suspension was made was what is now known as the Balkan frame. I have been unable to find anything in the literature upon the origin of the Balkan frame. It was used in the Balkan war, but whether it owes its origin to this war, I do not know.

In a personal communication from Major Blake which reached me a few days ago, he states that he obtained the idea of the frame which has been given the name of the Balkan frame from a frame used by Dr. H. M. M. Lyle of New York, when he was in charge of the branch of the American Ambulance Hospital at Juilly in 1914.

Quoting further from his letter he says: "As I understand it, this is not the Balkan frame, which I believe is simply two heavy posts connected by a horizontal bar a little longer than the bed. The posts are set on wide supports so that they can be shifted at any point at the head or foot of the bed. I understand that this apparatus derived its name from its being used in the Balkan war. I also understand and am positive it was used long before then."

I have found no mention in the literature by Lyle of the first use of this frame. It is very evident from Major Blake's description that what the English writers have called the Florschütz frame is the original Balkan frame.

Splints and apparatus devised by English surgeons in the present war are in most instances primarily for transportation, but adaptable for base hospital treatment. For the leg, many of these splints are in the form of an adjustable wire splint which can be rigidly attached to a stretcher or which rests upon the bed in the hospital. For wounds of the arm, various modifications of crutch splints are used. In cases where these splints are inapplicable, the Balkan frame or Florschütz frame is used.

Since this paper deals with the treatment of fractures in base hospital work, the description of apparatus and methods will be limited to those used in the treatment of fractures by suspension and traction from overhead frames, of which the Balkan frame has proven to be the most efficient and is the most widely used.

The Balkan frame is composed of four or five separate pieces: a head piece and foot piece, and two or three overhead bars to extend between the head and foot piece. All the parts are made of narrow boards about three inches wide by an inch thick. The head and foot pieces are made of two legs or uprights about six feet long and set at the bottom, a few inches wider apart than the width of the bed and at the top a few inches nearer together. They are joined at about the level of the mattress by a transverse bar, which in some cases is longer than the width of the bed to be used in abducting the leg or arm. Another transverse bar joins the top of the uprights, which is somewhat longer than the distance between the top of the uprights. This bar bears notches in the top one inch wide by about one inch deep and four inches apart to receive the longi-

tudinal bars. The longitudinal bars are notched to correspond with the notches in the transverse bars. The head and foot pieces are roped or strapped to the head and foot of the bed and the longitudinal bars fitted into the notches in the transverse bars to make the frame rigid.

The splint first used by Blake for a fracture of the femur was a modified Thomas knee splint with a half circle crutch connecting the lateral rods posteriorly at the upper ends. (See Fig. 6.)

The crutch of this splint fitted snugly against the ischium. At the foot an adjustable wooden bar was slipped on the lateral rods so that it could be applied to any length leg. Traction was maintained by bands glued to sides of the leg and drawn tightly over the bar at the foot of the splint. The pressure from the crutch was very irritating, often causing blisters and pressure sores, so that it was necessary to discard the splint and substitute for it a Hodgen splint. Since then the Blake splint has been modified by Lieut. Col. Keller; the crutch is attached to the upper ends of the splint by hinges to equalize the pressure of the crutch. The traction bands are attached to the foot of the splint, but the pressure from the crutch is lessened by a cord and weight attached to the foot of the splint.

Other types of leg splints in use with suspension are the railway splint (Fig. 7) and the jointed Hodgen splint (Figs. 8 and 9). In applying the railway splint the thigh rests upon the upper part of the splint, then the leg below the knee is attached to the movable part, allowing the patient to flex the knee a few degrees. The jointed Hodgen splint, which was recently reported by the writer, was designed for complete mobilization of the knee during treatment. Traction is applied above the knee joint and the suspension arranged so that the patient flexes his knee voluntarily. The splint devised by Buckner is valuable in that it permits flexion of the knee during treatment of fractures of the femur. (Figs. 10 and 11.)

The type of splint and the application of it in the treatment of fractures of the femur and fractures of any bones varies with the individual case. In civil practice, fractures at certain levels result in fairly definite types of displacement of fragments. In war wounds, owing to the frequent injury to muscles and nerves in the region of the fracture, there is great varia-

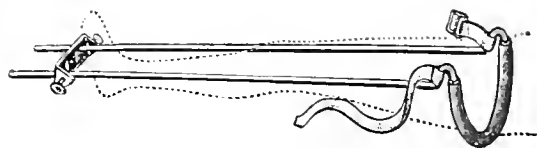


FIG. 6.—Blake splint. Modification of Thomas' knee splint.

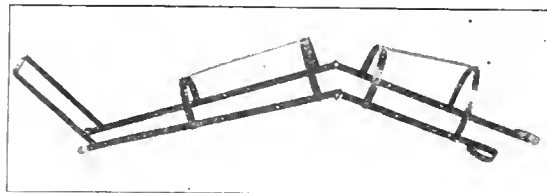


FIG. 8.—Jointed Hodgen splint.

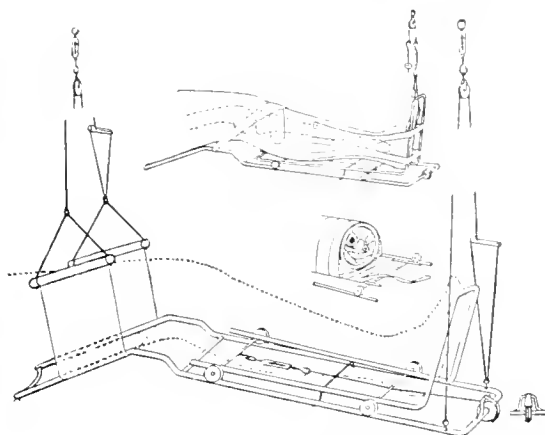


FIG. 7.—Railway splint. (Flint.)



FIG. 9.—Jointed Hodgen splint applied in fracture of upper third of femur. Note abduction support for the leg.

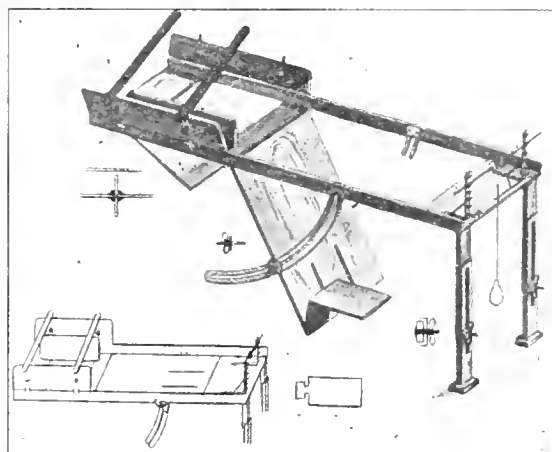


FIG. 10.—Buckner splint for fracture of the femur.

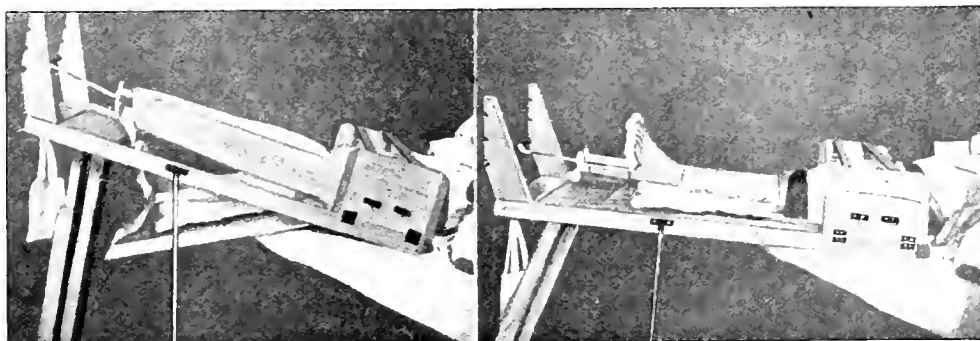


FIG. 11.—Buckner splint applied, showing flexion and extension of knee during treatment.

tion in the position of the fragments. In reducing the fracture and in the after-care, a position should be maintained which will give a good functioning limb. This position may not be the ideal, owing to the wound complicating the fracture, but it should be rarely necessary to allow a bone to unite in malposition, to be corrected after the wound is healed,

or to immobilize joints of a limb to attain satisfactory position of the fragments.

In the treatment of fractures of the femur at any level, the original position advised by Smith and, later, by Hodgen, of flexion of the hip and knee, should be maintained whenever possible. This position not only relaxes the hamstrings and gastrocnemii, which interfere

with the correction of overriding of the fragments, but it also relaxes the psoas and iliacus and external rotators of the thigh, and aids in attaining proper alignment and rotation of fragments. It will also aid greatly in traction of the limb if the suspension cords are placed at the proper angle.

A brief description of the method of suspending the leg applies in general to a fracture at any level. Variations must be made in each individual case according to the wounds and displacement of fragments. The leg is suspended in the splint by means of bands of heavy cloth from six to ten inches wide and long enough to be passed back of the leg and pinned at each end to the lateral rods. There are usually two for the thigh and two for the leg below the knee. After the splint and the leg have been suspended from the Balkan frame, the proper adjustment of these bands not only adds much to the patient's comfort, but is a great factor in securing proper alignment and rotation of the fragments. Shortening a band upon one side of the leg near the site of fracture will often entirely change the alignment of the fragments before union has taken place. The position of the bones after reduction should be verified by bedside x-rays if possible, as only in this way can the best results be attained.

The suspension of the limb and splint is simple: A short cord is attached at each end to a lateral bar of the splint at the top and foot, and if the splint is bent or jointed at the knee a third cord should be attached at the knee. To the loops of these cords are attached single cords, which pass through pulleys in the longitudinal bars of the frame and are then attached to sandbags, which are of sufficient weight to just counter-balance the weight of the leg. If the leg, as frequently occurs, has a tendency to outward rotation, the single cords should be attached to the loops so that the outer parts of the loops are shorter than the inner. Then the single cords should be fastened with adhesive so they will not slip. The upward pull on these cords will rotate the leg inward. The reverse holds true if there is a tendency towards inward rotation of the limb.

In suspending the leg for fractures of the femur the original rules emphasized by Hodgson, and, later, amplified by Mudd, should be adhered to wherever possible. The pulleys in the longitudinal bars should be so placed that the

suspending cords attached to the upper part of the splint will pull at an oblique angle toward the foot. (See Fig. 2.) By this means traction is exerted upon the thigh, so that less traction is required on the lateral bands. Mudd computed by trigonometry that if the pull exerted were at an angle of 15 degrees, a weight of 11½ pounds would exert a pull on the femur of 6.1 pounds. The foot of the bed should be raised from 6 to 10 inches to prevent the patient's slipping down toward the foot.

In regard to traction, there are four methods in use:

1. Adhesive bands or bands of flannelette glued to the skin.
2. Hennequin's band.
3. Some form of laced gaiter.
4. Direct traction by means of the Steinman pin or some modification of it or the Finocchetto band.

Bands of adhesive tape are commonly used in English hospitals, but rarely in French hospitals; instead the bands are made of heavy flannelette or Canton flannel, 3 or 4 inches wide with a strap or strong tape sewed to one end, the length varying according to the length of the limb. These bands are attached to the skin by means of Heussner's glue or a similar mixture. Heussner's glue is composed of colophane 50 parts, 90% alcohol 50 parts, Venetian turpentine 1 part, and benzine 10 parts. This is quite irritating to the skin and frequently causes blisters. Blake has been using in place of it Sinclair-Smith's glue composed of common glue 50, water 50, glycerine 2, thymol 1, and calcium chloride 1, which is less irritating. Tuffier uses a glue composed of Canada balsam 2, Venetian turpentine 1 and ether 1. All of these mixtures are applied by painting them on the skin while warm, then laying the cloth band on the skin and painting the glue on the band. The band is then pressed into the glue with a firm bandage, until it dries, after which the bandage is removed, usually 3 to 6 hours, and traction begun.

In Dr. Tuffier's hospital at St. Germain they were using instead of Canton flannel bands, a method devised by Sinclair-Smith. A heavy stocking or stockinette was cut the length of the lower leg. It was then heavily padded at the lower end to prevent pressure on the malleoli, and straps of tape were sewed to the sides for traction. The leg was shaved, washed and

dried, the stocking pulled on and painted with glue. This was a very efficient method of traction, but did not allow for any swelling of the leg.

Hennequin's bands are used in fractures of the lower third of the femur or humerus or in fractures at higher levels, where the wound does not permit the application of long glued bands. The limb should be first heavily padded, then a strip of webbing 3 or 4 inches wide by 3 or 4 feet long is laid across the anterior surface of the limb at its center, the ends are carried back and crossed behind the limb, then brought up to the sides and folded so that the straps will exert traction in the same plane as the shaft of the bone. They are then pinned at the fold on each side of the limb. This is efficient as a method of traction, but unless the limb is firmly bandaged is apt to cause edema. The straps must be folded and pinned so that the pull upon them will be exerted in the line of the shaft of the bone, otherwise the bones will be bowed forward or backward.

The Steinman pin and its modifications are the ideal methods of traction as the pull is exerted directly upon the bone and not transmitted by muscles or fascia as in other methods of traction. Its field of usefulness in war wounds is rather limited owing to the frequency of infected wounds in close proximity to the point of application of the pin.



FIG. 12.—Cradle splint—supporting a flexed Hodgen splint.

The laced gaiter is an effective method of extension in fractures of the lower third of the leg. The foot should be firmly bandaged to prevent swelling. A modification of the gaiter has been applied successfully to the flexed knee for traction on the femur and to the elbow for extension of the humerus, where little traction is required.

Another form of traction should be mentioned, as it is used in fractures of the shaft of the femur, in which there is extensive injury to the soft parts. This consists in traction on the calf of the leg with the knee flexed to nearly a right angle by means of the bent Hodgen splint or by the cradle splint. (Fig. 12.) This is applicable in cases requiring moderate traction, as strong traction in this position is very uncomfortable.

Toe drop is prevented by the application of a spring splint of the Harley type or by applying a wide band about the ball of the foot with elastic bands attached to it, and to the lateral bars of the leg of the splint. A better method, and one more frequently used, is by gluing a wide band to the sole of the foot, attaching a cord to it and suspending the foot from the overhead bar by a light sandbag. (Fig. 13.) All of these methods are based upon the principle of allowing free motion of the ankle joint.

The treatment of fractures by suspension and traction offers certain advantages not embodied in other methods of treatment, which make it the ideal method of caring for badly infected compound fractures in base hospitals. There is no pressure on the limbs from splints or tight bandages, and the limb is maintained in an elevated position, allowing free circula-

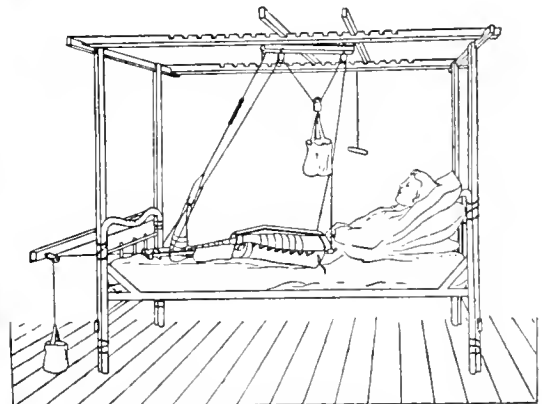


FIG. 13.—Balkan frame with Hodgen splint applied. Note band glued to sole of foot.

tion. As a result edema rapidly disappears and drainage is facilitated. The patient is absolutely comfortable, as the bones remain in the same relative position at all times. Dressings can be done and the patient move about and sit up in bed without disturbing the fragments. Neighboring joints can be moved and massaged without interfering with the wound. Consolidation of the bones and healing of the wound probably occur more rapidly than by other methods of treatment.

SPECIAL FRACTURES.

Certain general rules are to be followed in the treatment of fractures at different levels of bone, although these must be varied according to the peculiarities of the wounds in a given case. (Fig. 14.)

Femur, upper third: The position of the upper fragment in most cases is similar to that seen in civil practice,—abducted, flexed and rotated outward. Little can be done to change this position. The lower fragment must be brought into alignment with the upper. This is best done by flexion of the knee, or if this is impossible, raising the leg. The leg is then suspended in wide abduction by using long transverse bars and rotated outward by the methods already mentioned. Outward rotation can also be produced by gluing the toe-drop band to the sole of the foot in an oblique direction from the outer side of the sole to the base of the great toe so that the pull of suspension turns the foot outward. Traction should be made when possible above the knee joint, and the jointed Hodgen splint applied to prevent ankylosis of the knee. When this method is impracticable, the straight or slightly bent splint should be used, the leg raised and traction exerted on the leg below the knee.

Femur, middle third: Owing to the wound of the soft parts it is often difficult to apply traction above the knee, and the slightly bent splint must be used. There is less abduction, outward rotation and flexion of the upper fragments, owing to the attachment of muscles. The position in which the lower fragment is placed is simply a modification of that used in fractures of the upper third. Less abduction of the lower fragments is required to place it in alignment with the upper fragment as well as less outward rotation and flexion. (See Fig. 15.)

Femur, lower third: This type of fracture in war wounds, as in civil practice, is difficult to treat, owing to the backward displacement of the distal fragments, due to the pull of the gastrocnemii muscles. It offers the added difficulties in war wounds that the wounds of soft parts prevent in many cases any form of traction above the knee, and there is frequently injury to the knee joint itself. In the cases where the Hennequin band or Steinman pin can be used, reduction in proper alignment and rotation can usually be effected. Where these methods cannot be used every attempt should be made to obtain reduction and prevent union in malposition. The method which Blake has advocated of union in malposition with a straight splint and reduction while the callus is soft, by using the ankylosed knee for leverage, should be used as a last resort. Jones has frequently advised the use of traction with the Thomas knee splint in these cases, and cites a case where the distal fragment was compounded posteriorly and was seen to slip back in good position under this method of treatment. The Hodgen splint, flexed at nearly right angles with traction on the calf, has given good results in this type of fracture.

Fractures of the lower leg: Fractures of the fibula alone require little care except treatment of the wound of the soft part. Suspension is used during the acute stage of infection to add to the patient's comfort, to facilitate dressings, and to give better circulation.

Fractures of the tibia without injury to the fibula should be treated by suspension and traction, for the reasons stated above and to prevent a varus position of the foot. This is to be corrected by an unequal pull on the inner strap, using a gaiter for traction.

In cases of fracture of both bones of the leg, greater care must be exercised in applying apparatus. The traction pull must be exerted in the axis of the shaft of the tibia to avoid bowing forward or backward, and the supporting hammocks must be short enough to prevent posterior displacement of the bones. The method of traction to be used depends entirely upon the level of the fracture and the extent of the wound. Preferably lateral glued bands are to be used. In any method of traction applied above the malleoli, padding should be used sufficiently thick to prevent pressure on the malleoli. In all methods of traction except the Steinman pin, Finochetto band, etc., the

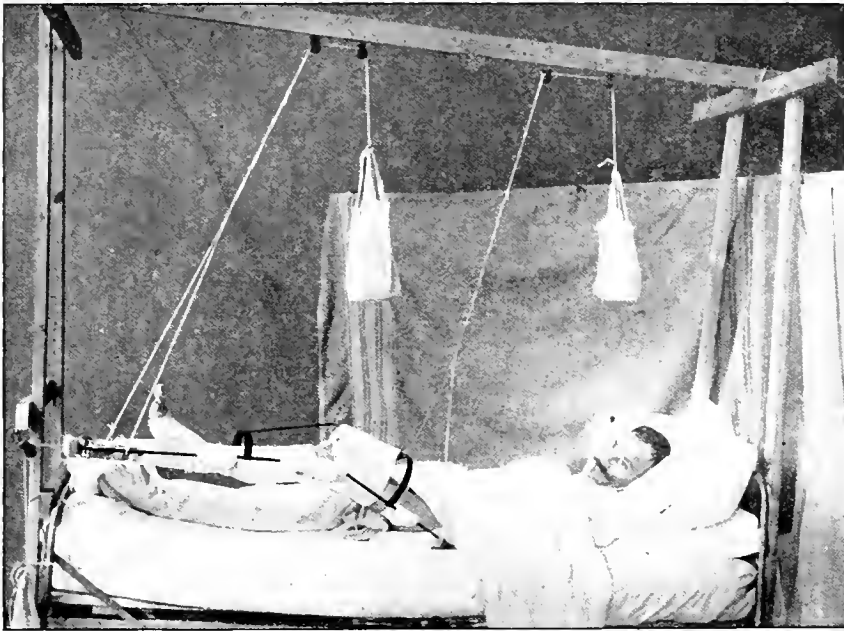


FIG. 14.—Bent Hodgen splint applied. Suspension in abduction.



FIG. 15.—Hodgen splint applied, with patient in prone position for fracture of middle third of femur.

extension straps are buckled to a wooden spreader in the middle of which is attached a cord and weight similar to that used in Buck's extension. The spreader should be wide enough to prevent pressure on the lateral surfaces of the limb below the point of application of the bands.

Little need be said regarding the treatment of fractures of the tarsals and metatarsals, except that better results are obtained by suspension. Traction is of little value. Toe

drop should be prevented either by the use of the Cabot splint or one of the methods for its prevention already mentioned.

In the treatment of fractures of the humerus, two methods are in general use in French hospitals. The choice of methods depends upon the degree of infection and the general condition of the patient. Patients with a low grade of infection and good general condition are put up in the aeroplane splint of Leyva. (Figs. 16 and 17.) This splint per-

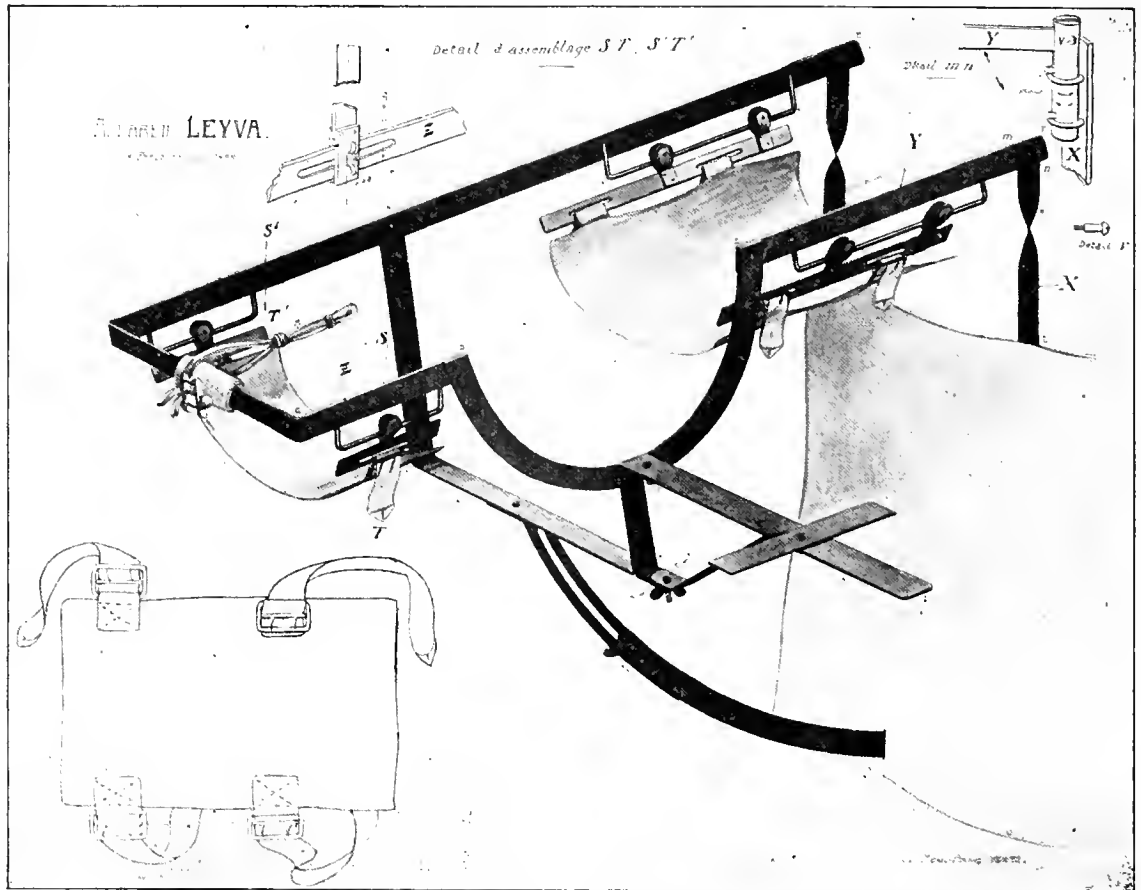


FIG. 16.—Aeroplane splint (Leyva).



FIG. 17.—Aeroplane splint applied for fracture of humerus.

mits the application of suspension-traction methods of treatment and at the same time allows the patient to walk about. It is especially applicable to fractures of the humerus after the acute stage of infection is past.

In the early acute stage of infection of fractures of the humerus, suspension and traction with the Balkan frame is the method of choice. No splint is used. The upper arm is suspended directly by means of a wide band of heavy cloth or preferably double rubber sheeting. The width of the band corresponds to the length of the upper arm and is about two feet long. In the ends of these bands, rods of wood or iron are inserted and holes punched in the rubber back of the rods for suspension. The arm is

device was designed to exercise the fingers and wrist. In the middle of the spreader a cord is attached for suspension from the frame overhead.

The method of traction of the humerus depends upon the extent of the wound. In fractures at high levels with wounds corresponding, traction is applied with glued bands. In wounds near the elbow, traction is maintained by the Hennequin band or modified laced gaiter. Care should be taken to exert a pull in the axis of the shaft of the bone to avoid bowing.

The Steinman pin inserted through the condyles of the humerus, as advocated by Hey-Groves, has been rarely used owing to the dan-

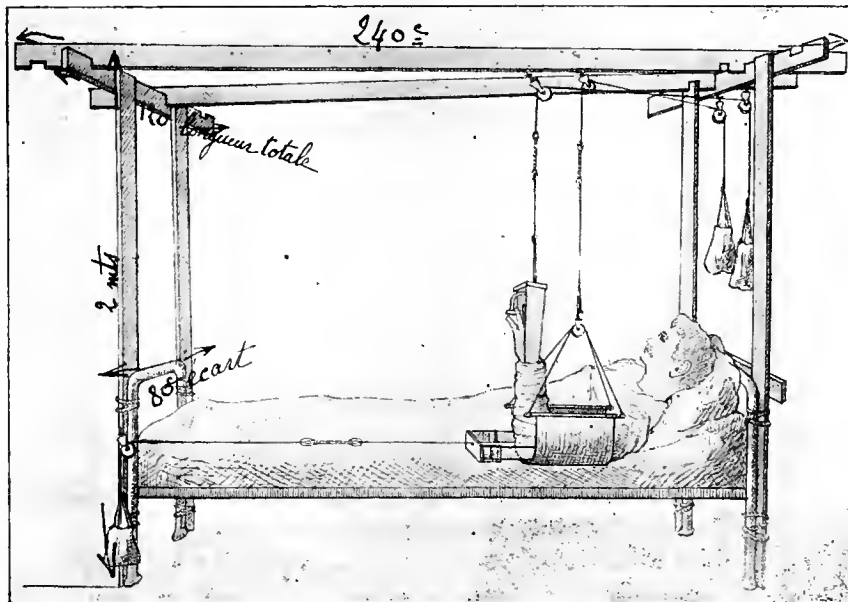


FIG. 18.—Apparatus applied for suspension treatment of fracture of humerus.

then suspended by loops of cord tied into these holes, these being attached to a single cord and suspended from the longitudinal bar of the frame. (Fig. 18.)

The forearm should be suspended vertically in these cases, if possible, to prevent edema, the bend at the elbow being nearly at a right angle, to allow traction from the upper arm. Suspension of the forearm is accomplished by bands glued to the flexor and extensor surface of the arm. These are attached to a wide wooden spreader beyond the reach of the fingers. To the ends of this spreader are attached elastic bands; these are attached to a round handle which is within reach of the fingers when the apparatus is suspended. This

ger of nerve injury. Suspension of the arm by means of the Balkan frame allows the patient to sit up or lie down in bed and permits considerable lateral motion.

There is one other method of suspension of the arm which deserves mention, though it is not used extensively in French hospitals. It is known as the Sinclair-Smith triangle frame. Dr. Tuffier was using it in his hospital at St. Germain. It consists of a small upright of wood about 2 by 4 inches, attached to one of the legs at the head of the bed. This stands about 5 feet high. At the top of the post is a triangle of wood on a swivel, with the apex of the triangle attached to the top of the post. In the arms of the triangle are pulleys for sus-

pension. The arm is suspended in a flexed wire splint arranged for traction, and the splint is suspended from the pulleys in the triangle. With this apparatus properly applied, the patient can get out of bed and sit in a chair with perfect comfort.

In the treatment of injuries of the upper third of the humerus, in which there is loss of substance of the bone, such as excisions of the head of the humerus and comminutions of the shaft, no traction should be used. The arm is suspended in wide abduction and the forearm suspended as described.

In fractures of the upper third the upper fragment is abducted and rotated outward. The lower fragments must be suspended to bring it in to alignment. It is therefore abducted to meet the upper fragment and rotated outward by suspending it to a longitudinal bar outside the bar from which the arm is suspended. Traction in abduction is obtained by attachment of a pulley to a long crossbar at the foot of the bed or by means of a board slipped under the mattress, on the end of which a post is set with a pulley for the traction cord. This board can be adjusted to give the proper abduction.

In fractures of the middle third, slight changes in the apparatus are needed. Less abduction is required, and care must be exercised in applying the suspension band and traction to prevent bowing of the bones.

Fractures of the lower third are more difficult to treat owing to proximity of the wound to the elbow. Traction in the form of a Hennequin band or laced gaiter can usually be applied. The suspension band should support the elbow to prevent bowing. As soon as infection is controlled the Jones elbow splint is very serviceable in these cases.

Fractures at higher levels after infection has subsided and fibrous union has occurred can be placed in a gutter cast fitted into the axilla. This is very comfortable, but not especially easy to apply.

Forearm fractures are put up in two positions, according to the amount of traction needed and the edema in the arm. If there is much edema and moderate traction only is required, the flexed position similar to that used for fractures of the humerus is used, and a counterweight of about 3 pounds suspended from the upper arm applied. If greater traction is required the arm is slightly flexed, a

Hennequin band applied at the elbow for counter traction, and traction applied to the forearm. In this position the forearm is suspended in a short splint similar to half a Hodggen splint or a small splint similar to the Thomas knee splint. The forearm is suspended in the splint in the usual way by bands of heavy cloth passing under the arm and pinned to the lateral rods of the splint.

The method of traction depends upon the site of the wound. In wounds of the upper part of the forearm traction is maintained by glued bands applied to the arm. If the wound is near the wrist, traction is applied by bands attached to the back and palm of the hand or by the method of Hey-Groves. This consists of a light band of iron which fits around the hand with a wire loop attached extending beyond the fingers. The band about the hand is attached to the skin by cloth bands and traction is applied to the wire loop. In all fractures of the forearm, whether one of the bones or both are broken, a position half way between pronation and supination should be maintained, as in this position the bones are more nearly parallel. These fractures usually require suspension treatment only during the stage of acute infection. After this stage is passed they can be transferred to the Jones splint for forearm fractures or any type of splint that permits walking about.

In the treatment of fractures involving the elbow joint the splint used by Flint is very comfortable. This is similar to the Nathan R. Smith leg splint and allows space beneath the splint for dressings. (Fig. 19.)

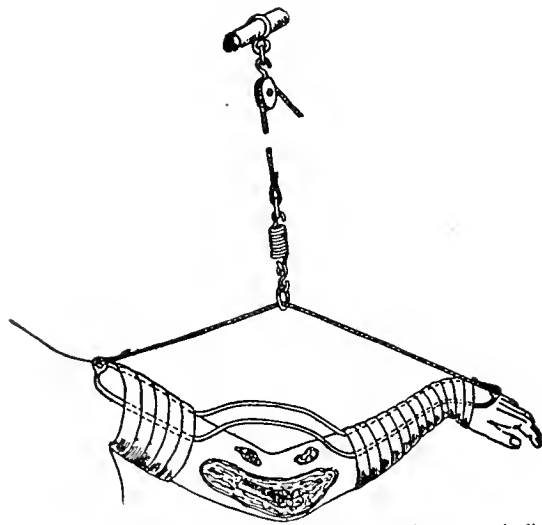


FIG. 19.—Anterior wire splint for suspension of fractures of elbow joint (Flint).

CONCLUSIONS.

The idea of treating fractures by suspension and traction is not a product of the present war, as it was first used over a hundred years ago. The adaptation of this method to fractures of the arm and many improvements upon the original method of Hodgen for treating fractures of the leg are the results of the present war. Many of the new ideas in this method have been developed by surgeons of the staff of the American Ambulance Hospital, especially by Major Joseph Blake.

The introduction of this method in the present war was for the treatment of badly infected compound fractures. It has proved of inestimable value, from both a subjective and an objective point of view. Subjectively, there is absolute comfort to the patient at all times, as the fragments of bone remain in the same relative position when the patient moves about in bed and when the dressing is done. The pain from congestion of the limb is eliminated owing to the improved circulation.

Objectively, the edema of the limb disappears as the limb is higher than the body, and there are no tight bandages about the limb; the wound heals more quickly, due to better circulation. Union of fractures occurs early as a result of immobilizing the fragments, and ankylosis of neighboring joints is avoided by massage and motion during treatment.

It requires some training and patience to apply the apparatus properly at the first dressing. It also requires watchfulness on the part of the surgeon to maintain a proper application of the apparatus throughout treatment; but the results more than compensate for the added work.

The newer method of treating fractures in war wounds by removal of foreign bodies, with excision of infected and devitalized tissue in the path of the projectile and primary suture eliminates a large number of infected cases, formerly treated by this method. There is still a large field of usefulness for this method in wounds that are not treated by primary suture owing to the infecting bacteria, or for any other reason. Also in many fractures, after primary suture has been practised, it will be of value on account of the comfort to the patient and immobilization of the fragments.

CIVIL PRACTICE.

In regard to the application of this method to fractures occurring in civil practice there is little at present to say. It has been used to some extent by surgeons who have had experience with it in war work, but no reports have as yet been published. A comparison of the results obtained by the suspension-traction method with those obtained in civil practice with the older methods of treatment in infected compound fractures will influence many to adopt it. The wide experience which our surgeons, who are now doing base hospital work abroad, are having with this method, will result in its more general adoption when they return to civil practice.

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THE USE OF THE TURN-BUCKLE FOR TRACTION AND COUNTER-TRACTION IN THE TREATMENT OF FRACTURES.

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It is a trite saying, indeed, that necessity is the mother of invention, but nowhere is this more true than in the life of a physician or surgeon where very often use must be made of the things at hand. And this very necessity may lead him to give birth to a new idea which, if it is carried out in the face of old and tried methods and proves a success, is at least worth the consideration of his fellows.

As all mechanical principles are found illustrated in the human body, so, also, is it true that some of the simplest things in mechanics prove of use to the surgeon in dealing with the body. In a practice of thirty-five years in a manufacturing city I have treated many fractures, but nowhere in surgical literature have I seen any reference to the use of the turn-buckle as a *direct* means of producing both traction and counter-traction in the treatment of fractures of the long bones. The turn-buckle has been used in other ways, chiefly in conjunction with the Steinman nail, which has its dangers. In my device the turn-buckles directly span the point of fracture.

The turn-buckle is a peculiarly unique mechanism where *carefully controlled traction* and counter-traction has proven necessary under x-ray findings, and I believe that it will find a very important place in surgery.

It may be found at any hardware store and is familiar to most of us as a means of making taut a slack wire or cable, or tightening up the buck-saw.

It has, however, also the reverse action,—that is, of pushing asunder, in a straight line, two given points. It is made up of three parts—the central frame with right and left female thread into either end of which fits an eye-screw.

There are, for ordinary use, four sizes, ranging from two and one-half to six inches, the four- or six-inch size being preferable in the average fracture case. Those made of galvanized iron are better for our purpose as they do not rust, and they withstand greater resistance than those made of brass, which are too soft.

To illustrate the use of the turn-buckle, take, for example, the following case:

A five-year-old boy, knocked down by an automobile, sustained an oblique, compound fracture in the upper third of the right femur. He is a very active child, and it seemed to me that it would be a mercy to both patient and nurse so to apply extension and counter-extension that he would not be so closely confined to his hospital bed as he would be under the usual methods.

Extensive blood clots having been expressed from the wound and moist antiseptic dressings applied, with rest and elevation on pillows to reduce swelling during the first three days, the x-ray shows that the upper fragment points forward and outward, and we now adjust the fragments in line by flexing both thigh and knee with slight rotation outward, and in this position, with ether anesthesia, under some extension, a plaster spica is applied, encasing the pelvis and leg from the navel to the ankle.

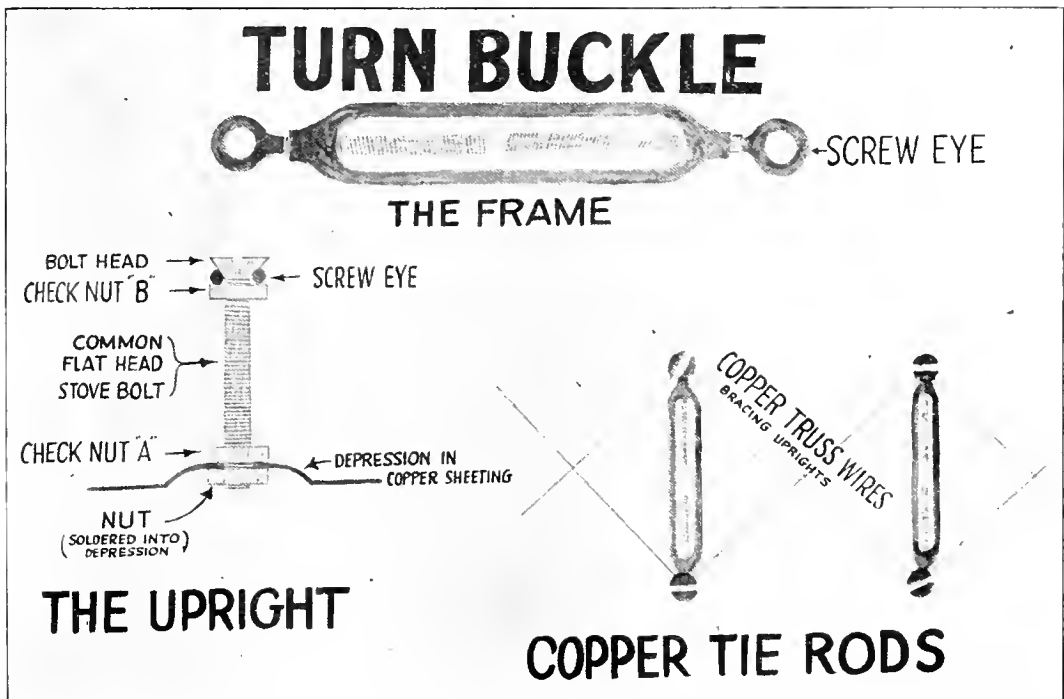
When the plaster cast has hardened, another x-ray shows overlapping and some displacement of fractured ends with one inch shortening. The cast is now cut through transversely in two parts at the site of the fracture, the underlying bandage and dressings being undisturbed. A window is also cut in the plaster directly over the dressing of the external wound, which in this case is on the inner side



VIEW OF OUTER SIDE OF LEG WITH APPARATUS IN PLACE.



VIEW OF INNER SIDE OF LEG WITH APPARATUS IN PLACE. NOTE THAT BOTH INNER AND OUTER TURN BUCKLES ARE PLACED AT AN ANGLE TO PRODUCE OUTWARD ROTATION OF LOWER FRAGMENT.



of the thigh. With two strips of paper laid around the cast just above and below this transverse cut we now mark out patterns the exact size for two metallic collars, three or four inches wide, which are to be placed in corresponding positions, each to rest one-half inch from the slit in the cast and completely encircling the cast. From these paper patterns the metal collars are now made, corrugated copper sheeting being used for the purpose, as it is sufficiently strong and easy to adjust. The collars are cut in such a way that the corrugations in our copper sheeting run parallel with the limb to increase strength. While the paper patterns are fixed in their required position we decide the points at which to place the turn-buckles in order to get the proper extension and we mark the points for the opposing

upright stove bolts to which are to be fixed the eyes of the turn-buckle.

The patterns being thus outlined for the proper setting of three turn-buckles, we now cut out the metal collars according to the patterns, and at each point indicated for the upright bolts a depression or dent is made in the collar deep enough to retain a nut on its concave or under side, having first punched a hole in the center of the depression large enough to admit the stove bolt. These nuts are then soldered immovably into the concave or inner side of the depression, so that the collar will lie smoothly upon the cast. The collars of themselves are now complete and are adjusted in proper position, being held for the instant in place by adhesive plaster until secured firmly to (incorporated with) the underlying

cast by a few turns of fresh plaster-of-Paris bandage. But in applying this plaster-of-Paris bandage the screw holes in the copper collars are first packed with sheet wadding to prevent their filling with plaster of Paris while it is being applied. In place of sheet wadding for this purpose, I would hereafter use a well-oiled stove bolt as preferable, as was kindly suggested to me by Dr. H. F. Day of Boston.

We are now ready to place the turn-buckle and to support it in position, to which end we use "flathead stove bolts" with full-length thread, each bolt being provided with three nuts, one of these having been already soldered under the collar as described. We now thread the eyes of the turn-buckle onto the upright stove bolts, holding the eye firmly against the bolt-head by one nut, while a second nut is screwed firmly down upon the outer surface of the collar, the bolt having already been screwed into the nut underlying the collar.

Each turn-buckle is placed in the same manner, and when all have been firmly fixed in position by the bolts thus secured in the collars, our mechanism is complete. We now rotate the frame so that the ends of the eye screws push apart, the slit in the plaster cast widens and inevitably, in so doing, the overlapping fractured ends ride into place, the x-ray showing that displacement has been reduced to a minimum. However, to secure *absolute immobility*, copper wire is wound criss-cross from bolt to bolt, as guy wires or tie-rods are used to prevent a bridge from swinging. Of course, the necessary outward rotation of the distal fragment, also contracted by this apparatus, is brought about by placing the inner and outer turn-buckles at proper angles, which must be studied out in each individual case.

The cast and turn-buckles were removed at the end of the sixth week from the time of fracture, when, under the x-ray, we find that union is complete with a good, normal callus and no shortening or deformity. Movements of all joints were found to be free and the case was dismissed as cured.

This method may be used in fractures of any of the long bones of the body where continuous extension is required; even in fractures of the lower leg, thus avoiding not only operative interference, but also the necessity of a Finocchetto stirrup or the Steinman nail.

One can see where it might appeal to the orthopedist as being of inestimable value in controlling some of the spinal deformities, dislocations or fractures.

In conclusion, there are certain points which I would emphasize:

1. Its simplicity. To one not familiar with the turn-buckle the above description may seem complicated, but it is really easy to make and simple to adjust.

2. Its use allows the safest handling of the patient and much freedom of action without disturbance of the parts. It also makes the work of the nurse much easier. The patient may be taken from the bed to the x-ray room at any time or moved from place to place.

3. The dressing of wounds is made easy and bed sores will be less frequent.

4. Remember:—

Keep the guy wires taut and secure them *close* to the cast, at the *base* of the bolts.

Keep the frame of the buckle turned so that it always makes slight resistance against the upright bolts to secure immobility. This is an important point.

The thread of all nuts, screws and bolts should be well greased to prevent them from rusting in.

Use only galvanized iron turn-buckles.

Have your upright bolts of proper length to allow easy manipulation of the turn-buckle (about two inches).

In screwing the upright stove bolts into the buried or soldered nut, stop when you meet the resistance of the underlying cast.

Copper wire (No. 15) is the best to use for tie rods, being easily handled. The crimped copper sheet plus the plaster-of-Paris cast does not interfere materially with getting a fairly good skiagraph.

To sum up:

The materials *needed* in addition to the plaster cast are only three or four turn-buckles, each four to six inches long, flathead stove bolts with full-length thread up to the bolt head, two for each turn-buckle. Three nuts for each of these stove bolts, one being soldered into the collar. For the collars I use what is known as "16 oz. crimped copper sheeting" (*i.e.*, 16 oz. to the square foot) and enough copper wire for tie rods.

Then last, but not least, you will need courage to try a new method, but when once tried I

believe you will be more than satisfied with the result.

SOME OBSERVATIONS ON WAR SURGERY IN FRANCE.

BY W. IRVING CLARK, M.D., WORCESTER, MASS.

THIS paper is not a scientific contribution. It is an effort to put briefly before the members of this section the observations of the writer during six months in France.

Traumatic surgery as a whole has been unchanged by the war. The basic principles of asepsis in operating, irrigation in cases of infection, and extension in alignment of fragments in cases of fracture, are maintained and practised in every war hospital in France.

Many ideas have undergone modification, and there have been a multiplicity of methods for handling different types of injury, but the methods which are now becoming so generally used as to be almost standard are based on old and well-known surgical principles.

In order that you may see the general picture as I have seen it I will sketch the course of a wounded soldier from the trenches to the rear, indicating as he proceeds the most probable course of treatment he will receive, and endeavoring to sketch the new forms of treatment or modifications of old forms, as they present themselves.

In drawing this general picture it will be impossible to touch on the bizarre wounds, plastic surgery, or any special branch, and I shall confine myself to the more common types which are met in any war hospital service.

Wounds of war may be roughly divided into two great classes, the slight or flesh wounds (the *petits blessés* of the French) and the more severe wounds, fractures, wounds of one of the three body cavities and nerve injuries (the *grands blessés*).

From the point of view of the Army the former are the most important, for by prompt and effective treatment a man may be returned to the ranks in a month or six weeks, while in the latter his return at any time is problematical. According to most recent reports, 80% of the lightly wounded return to the ranks in four to five weeks. Moreover, the slight wounds, if not treated according to recently accepted methods, invariably become infected, endangering the limb and often the life of the soldier.

The primary treatment of all wounds on the battle field is practically the same. This treatment is given at the first dressing station and consists of a removal of any gross material projecting from the wound, painting the wound and skin with some form of iodine, usually the tincture, applying a sterile pad and bandage, and immobilizing the wounded part in case of fracture for transportation. For this immobilization some form of Thomas splint is usually preferred. The U. S. Army has adopted the Blake-Kellar modification, in which the hip ring is not complete, the anterior half being replaced by a strap and buckle. Traction is exerted by means of an anklet with lateral straps or by a clamp attached to the patient's shoe with traction straps depending from it. These straps are tied about the notch in the lower end of the splint and twisted taut with a pin, which by being partly withdrawn impinges on the side of the splint and prevents unwinding. All fractures of the leg in the American Army will probably be transported in these splints, while a smaller similar splint is used for the arm fractures.

The patient, having thus been prepared, is transported to the most active hospital in the war—the evacuation or front line hospital. These hospitals are supposed to be as close to the line as safe, safety being gauged entirely by shelling. When a hospital comes under regular shell fire it is evacuated to a point just out of reach of the usual shelling. The object of this close proximity to the line is to enable the surgeons to operate at the earliest possible moment after the wound has been received,—within six hours, if possible. All wounds at this hospital receive the same attention, but in most cases the more severely wounded are transported directly to base hospitals or hospitals further to the rear if their condition permits. Arrived at this first hospital after the regular cleaning, the patient is immediately given a general anesthetic, placed on the operating table, and the wound and surrounding skin washed with ether and painted with tincture of iodine. An elliptical incision is made around the wound. The outlined piece of skin with the wound in the center is raised and the dissection carried on along the tract of the piece of shell, the surgeon being guided by the appearance of the tissues, until the capote or piece of cloth and the fragment of shell are reached, the whole

tract including the foreign bodies, being removed like a tumor "en bloc." When this cannot be done, the wound tract is laid open and followed, all damaged and discolored tissue being dissected away.

All wounds more than ten hours old are left unsutured. Where bone is involved, the fragments unattached to periosteum are gently removed, all others being left in place. Compound fractures are not closed by primary suture.

After primary suture a patient is supposed to remain in the hospital for ten days under observation before being evacuated to a base.

If the foreign body cannot be located, the operation is transferred to the x-ray room, where the operator works with the aid of a fluoroscopic screen. The work done this way is very beautiful, neat and accurate.

Amputations are never done if they can be avoided. All amputations are guillotine type with no flaps, by order in the French Army.

Chest cases are usually treated expectantly, that is, beyond the excision and cleaning up of the wound of entry, no operative work is attempted.

Abdominal cases are treated very much as in civil surgery. The mortality in these cases is high.

Head cases are usually sent to a special hospital. I was unfortunate in not seeing any. I understand that the operating is conservative, pressure being removed and fragments of brain and foreign matter being irrigated or sucked out with a catheter, very gentle negative pressure being used.

In due time the patient, no matter what his type of wound, is transferred to a base hospital.

The base hospital is where the less spectacular but perhaps the most difficult work is done. Among the French the wounded soldier remains at a base hospital until he is either entirely cured or until all operative treatment is completed.

The work consists principally of the treatment of: (a) infected wounds of the soft parts, (b) compound fractures, (c) amputations, (d) chest cases. Head, face and abdominal cases are usually treated at special hospitals.

The treatment of all infected wounds is divided into two classes:

(1) Those very slightly infected with a non-virulent organism.

(2) Those badly infected with many organisms or lightly infected with a virulent organism, especially streptococcus and b.a.c.

The treatment of Type 1 consists in either drawing the edges together with adhesive and treating as an aseptic wound or in placing a secondary suture. The determination is usually made quantitatively by the Carrel counting system and qualitatively by culture. Streptococci, even in small numbers, especially if in pure culture, are considered an absolute bar to secondary closure of any type. B.a.c. is not considered so unfavorably, and if not present in large numbers many surgeons unhesitatingly strap the wound. A large proportion of wounds seen at a base hospital are slightly infected with b.a.c.

In the majority of cases neither strapping nor secondary suture is done. The wound is left wide open and treated with Carrel tubes. Dakin solution is not used exclusively. In many cases a weak acetic acid solution, usually combined with quinine, is used, this being particularly valuable when the bacteria are those requiring an alkaline medium for growth, or where there is a tendency to secondary hemorrhage. In spite of the numerous solutions used, it is interesting to note that the Carrel method of administration is universally used, and that such leading surgeons in Paris as Chutro and Tuffier use Dakin's solution entirely, adhering exactly to the Carrel technic.

The management and dressing of these multiple infected wounds, usually complicated by fractures, tries all the ingenuity of the surgeons and nurses. That it is possible to do these dressings rapidly, effectively and without great pain is due largely to the suspension method of treatment, and partly to the number of assistants available in a war hospital. The means by which this is done will now be discussed, as it is the method most employed in caring for the most common of all the serious cases in base hospitals—compound fractures of the lower extremity. A compound fracture of the upper extremity is often treated in ambulatory apparatus, and the difficulty of dressing these cases is not great, but the compound fracture of the lower extremity, usually complicated by multiple wounds, is much more of a problem.

The basis of treatment is the Balkan frame, now modified and perfected into a very simple but invaluable structure.

The frame here described is that used at American Red Cross Military Hospital No. 2, and is standard for the U. S. Army.

The frame consists of a head frame and foot frame of wood united by longitudinal bars. The wood is white pine, $7/8 \times 2$ in. The head and foot frames consist of two uprights slightly slanted to form a truncated A. The cross bars which hold these uprights together are the width of the bed, at top extending beyond uprights on either side, while the lower joins the uprights at the level of the mattress.

The longitudinal bars are two in number, resting on the upper cross bars and retained in any desired position by reciprocal notches (mortise joint).

The two advantages presented by the frame are suspension and traction. Suspension is maintained by a Hodgen or Thomas splint, which supports the lower extremity as in a cradle, this being suspended by cords and counterweights, which are so arranged that they exactly balance the weight of the limb and splint. Toe drop is prevented by a special counter-weight, while traction is maintained by direct pull through extension bands glued to the skin, by a Steinman pin, or a Finochetto stirrup. The principle of suspension allows the patient free movement in bed, makes for ease of dressing, and permits of motion in hip, knee and ankle. This change in treatment is due to the development of the theory that if the fragments of a fracture are kept in proper alignment, immobilization of the joints above and below the point of fracture is unnecessary.

The two great principles of treating compound fractures are:

(1) Arranging the apparatus so that the lower fragment is in line with the upper fragment.

(2) Making very strong traction for the first 24 to 48 hours, until all muscular pull has been overcome and then reducing the weight.

The wounds are treated as described above. Fractures about the joint frequently require resection. The Lyon School has developed resection of joints of the upper extremity to a remarkable degree. Using the sharp periosteal elevator, they carefully denude each fragment which is to be removed, taking the periosteum and a very thin shaving of bone. All fragments having been removed, the joint is immobilized with plaster for a short period of time, usually 7-10 days, and then active mo-

tion is started. The operated area is also exposed to the sun for a period of 15 minutes each day. New bone regenerates fairly rapidly and is shaped by the muscular pull on the periosteum so that a fairly serviceable joint results. The period of reconstruction is usually four to 6 months. The sunlight treatment of all open wounds is being advocated and tried largely throughout France.

Empyema of the chronic form is treated by wide opening, irrigation and the placement of Carrel tubes, which extend all through the cavity. As many as twenty or thirty tubes are used. Tuffier thus completely disinfects the cavities of old empyemas and then sutures tight by a plastic operation. His results are remarkable. I did not see the results of other surgeons employing the same method, and do not know if it is in general use.

At the French hospitals which I visited, bone plating was used in preference to bone grafts, though grafts were used in some cases. When grafts were used they were cut by chisel rather than electric saw. The French surgeons believe that the trauma caused by the saw is greater than that caused by the chisel, and that latent infection is more likely to be stirred up. It is considered inadvisable to graft previously infected bone sooner than three months after the wound has healed. Plates are often tried somewhat earlier, especially if the infection was not severe.

Compound fractures are very frequently complicated by severance or injury to a large nerve. In these cases no operation of suturing is considered advisable until four months after the wound has healed, because of secondary lighting up of infection; the same rule holds for tendon transplants or suture.

In nerve cases, supporting splints are used, as the Jones "cock-up" splint in radial paralysis. This allows the patient to use the hand and keeps up muscular tone. Massage is preferred to electrical stimulation previous to nerve suture.

The French use plaster very beautifully. Instead of employing the plaster bandage, forms are cut out of crinoline, 12-22 thicknesses being used. These forms are immersed in plaster cream, which is well rubbed into the form. The form is then applied directly to the affected limb, the skin of which has been coated with vaseline. A very fine dental plaster is employed, and there appears to be no irritation.

The cream is made by adding the plaster little by little to a basin holding about a quart of cold water, the water being gently but continuously agitated with the hand as the plaster is added. When the consistency is such that the withdrawn hand appears to be covered with a white cotton glove, the correct combination has been made. The form is immediately plunged in the plaster bouillon as described above. Many ingenious forms are used, especially the Delbet *appareil de marche* for fractures of the leg. Upon the completion of all operative work and the healing of all wounds the patient is sent to a physiotherapeutic center. Here he receives massage, mechano-therapy, electricity, heat and gymnastic training. Following this, if unable to return to the Army, he enters a re-educational school where, with the assistance of many ingenious types of apparatus, he is taught to adapt himself to his physical incapacity, and after from three to six months enters once more into civil life.

DISCUSSION.

DR. DAVID CHEEVER, Boston: I was very much interested in what Dr. Clark had to say, especially about the guillotine amputations. That was the method used in the British army in 1915-1916, but I note that lately in the British surgical literature there have been many protests against this method. They necessitated secondary amputations, which resulted in marked additional shortening of the limb, and in a certain number of cases secondary tetanus appeared. Of course that could, no doubt, be handled by additional prophylactic injections of tetanus serum, so that the latent and encapsulated organisms freed by the secondary operation would be destroyed. It would seem that flap amputations, with the tissues held widely apart by appropriate packing with gauze and protective tissue, would be as effective in preventing gas bacillus infection and give better stumps.

DISCUSSION ON EMPYEMA AND ITS TREATMENT IN MILITARY CANTONMENTS DURING THE WINTER OF 1917-1918.

BY MAJOR HOMER GAGE, M.R.C., WORCESTER, MASS.

IN response to the invitation of your committee, I am very glad to say a few words about one of the camp problems that has both-

ered us all winter, and that is really one of the most interesting and one of the most important problems that has arisen during the winter's work among the new recruits.

Our problems are quite different from those encountered in the camps in 1898, a difference largely due to the elimination of typhoid fever and the so-called "typhoid malaria." The absence of these diseases is due chiefly to the triple inoculation with typhoid and paratyphoid vaccines; but the splendid work of the Medical Corps of the Army in improving camp sanitation, in the careful selection of camp sites, with reference to their natural soils and drainage, and eliminating the sources of malaria and other insect-borne diseases, has been an important contributing factor.

In spite of all possible care, the herding together in barrack life of large numbers of men, especially from the country districts, has favored the spread of certain other infections. To a lesser degree we have scarlet fever and diphtheria; to a greater degree mumps and cerebrospinal meningitis, although we have been very fortunate in having little of the latter in New England. And to a still greater degree we have had measles and pneumonia, which have taken the place to a considerable extent of typhoid and its allied diseases, as the most common and the most dangerous diseases incident to camp life. They are always present in our base hospitals in larger proportion than one sees in our civil hospitals; and at periods of great activity, as after the arrival of large numbers of new recruits, constitute a clinic the value of which cannot be appreciated by those not in the service. The clinic thus constituted is an exceedingly valuable post-graduate course for the general practitioner.

From a surgical point of view, the most interesting thing in connection with the epidemic of pneumonia and measles has been the study of the empyema with which they have been so frequently complicated. In our experience about twenty per cent. of all cases of pneumonia have been followed by empyema, fifteen per cent. of the straight lobar pneumonias, and twenty-one per cent. of the post-measles pneumonias. The empyema met with has been very different from the type which we have been accustomed to see in civil practice and in our local hospitals.

Ordinarily, if, after the crisis of the pneu-

monia, we have a subsequent rise in temperature, or when the temperature remains up after the crisis should have occurred, we begin to look out for the physical signs of empyema, and when this seems sufficiently evident we aspirate, and if we find thick, purulent fluid, the case is turned over to the surgeon. Except in older, neglected cases it is not often regarded as an emergency, but is operated on, as the fluid reaccumulates, often under general anesthesia, and usually with the resection of a rib. If the case is neglected or unsuspected, we get a picture of general sepsis with marked dyspnea from lung compression.

Now the empyema of camp life during the past winter has been very different. It is of rapid development; does not wait for the crisis; in some instances fluid being present within three or four days after the symptoms of the pneumonia. More rarely it appears without the preceding pneumonia. In eighty-one cases of pneumonia with empyema, fluid was found, in sixty per cent. within the first two weeks, and in most of these within the first week. In other words, it has usually appeared before the pneumonia has cleared up, thus adding very greatly to the danger and difficulties of surgical treatment. Then again the fluid has collected very rapidly and suddenly, often reaching large amounts within twenty-four hours.

Another feature that has distinguished these cases from those ordinarily met with has been the character of the fluid. In very few cases have we found frank pus. We get instead a cloudy, serous fluid with much fibrin, showing many leucocytes microscopically. The fluid is often so clear that it seems hardly necessary to drain.

I do not know what is the mortality of empyema in civil life, although I believe it to be higher than has been generally realized. However, I do not think it has been comparable to the mortality from empyema as experienced during the last winter in the different camps. In one it was eighty-four per cent., in others fifty-three per cent., fifty-seven per cent., and sixty-five per cent. In twenty-five different camps there was an average mortality of over thirty per cent. It is clear, therefore, that pneumonia and empyema have been very important factors in the mortality as well as the morbidity statistics of the army camps.

Bacteriologically, most of these cases have

shown hemolytic streptococcus, both in smear and culture; and this has been true even of the lobar pneumonia. Often a Type I or Type II pneumonia would be accompanied by a streptococcus empyema. In some, where the mortality has been very low, the streptococcus has been absent, but apparently it has been quite universal. We undertook one or two interesting experiments to see how prevalent it was among the officers. From the medical officers at the Base Hospital cultures from the throats showed that seventy-two per cent. carried the hemolytic streptococcus in their throats. Then we tried it among the nurses, and found that sixty per cent. of the nurses carried it. Then, as a check, we took the camp surgeons, including the regimental surgeons, and only five per cent. of them were streptococcus carriers. Yet, of course, the cases of pneumonia were all coming from the camp. There were no cases of the streptococcus pneumonia among the personnel of the hospital, in spite of the fact that seventy per cent. of us were carriers.

We believe that the empyema was simply a local manifestation of a blood infection, that is to say, it was but an expression of a general constitutional infection. We felt that only upon some such basis could we explain the presence of the infection in both pleurae at the same time, in the pericardium, and even in the peritoneum. To these we occasionally added joint infections so that we really had a polyserositis. Although the pericardium was often involved, the endocardium was seldom infected. I remember but one instance, a case that was apparently convalescent, but which terminated fatally. The patient was sitting up in bed about ten days after thoracotomy, talking with his father, apparently very well, when he was seized with a sudden dyspnea and cyanosis, and died within five minutes, as if from pulmonary embolus. Autopsy showed an organized clot on the side of the right auricle, partly detached, and blocking the auriculo-ventricular opening. A noticeable feature of the autopsy was the presence of multiple pulmonary abscesses, some of them very minute, some holding two or three cc. of pus. When these were at the periphery of the lung, it seemed possible that their rupture might have given rise to a direct contamination of the pleural cavity, perhaps even with the pneumothorax that was occasionally met with.

One other interesting point disclosed by

autopsy was the presence of a large collection of fluid, in a few of our cases, between the left lung and the pericardium. It was really a walled-off abscess lying between two layers of the pleura. In one instance we found three or four hundred cc. in this locality. If we could have located it ante mortem, it could have been drained, but we were unable to detect it, even with the assistance of the x-ray.

The clinical picture differs from ordinary empyema, chiefly in its early appearance as a complication of the pneumonic process. The patients are, therefore, as a rule, much sicker than we have been accustomed to see them. If they live long enough for resolution to take place, they present a picture not unlike that commonly seen in civil practice.

In establishing the diagnosis, aside from the ordinary physical signs, the x-ray is of great value, often indicating and locating the pneumonia even before the physical signs are clearly defined, and revealing the presence and progress of a pleural effusion. Chief reliance as to the presence of fluid must, however, be placed upon repeated tapping of the chest with a good-sized needle. Some of the patients have to be tapped many times. As soon as you suspect the fluid, tap, and then tap again, and keep it up until you are thoroughly satisfied. It apparently does not disturb the patients much, if carefully and properly done, and it leads to a much earlier diagnosis than you get in any other way.

As to the interesting problem of treatment, of course we have the alternatives of frequent repeated aspirations and of drainage, and drainage may be obtained with or without rib resection. Repeated aspiration in some camps has turned out pretty well. In a few of the camps too extensive operation seems to have raised the mortality. We aspirated frequently, but in presence of a streptococcus infection, as proved by smear and culture, or in the presence of frank pus, we operated, and we operated as early as either condition was established. As to the form of operation we felt, and still feel, that the patients were so very sick that it was unwise to add any greater discomfort or shock than was absolutely necessary, and in all instances we did a simple thoracotomy under local anesthesia. In the adult, one can get a large drainage tube between the ribs, and secure such good drainage that rib resection would not seem to be called for.

As for irrigation, we did not irrigate except in cases where there was a foul odor to the fluid (and that happened only once), and in cases where there were large fibrin clots, which we could not remove without irrigation.

We had twenty-one cases in which we had pneumococcus infection alone. Of these, seven were operated on without any deaths, and of the fourteen not operated, eleven died. There were forty-one cases with the streptococcus alone, twenty-six of which were operated on, with, up to the present time, eight deaths, and fifteen not operated on with eleven deaths. The infection was a mixed streptococcus and pneumococcus in five operative cases without a death, and in eight cases not operated on, of which four died. Of the cases in which the infection was unknown, or not recorded there were four, all operated on, and one of them died. Out of twenty-four operative cases, there has been up to the present time a mortality of eighteen per cent., and of thirty-seven non-operative cases there was a mortality of seventy per cent.

To summarize: I think our experience illustrates very well the absolute importance and necessity of operation. Its value seems to have been clearly brought out in our group of cases, and my experience and observation of the results in other camps leads me to stick strongly to my opinion about the value of simple thoracotomy with local anesthesia, as against the excision of rib, believing that the less you do to a patient so sick, in getting relief from the immediate difficulty, the better the chance you give him to get well. The only change that I should make in a future series of cases would be to put them immediately upon irrigation with Carrel-Dakin solution.

DISCUSSION.

S. J. MIXTER, Maj. M.R.C.: These cases of pneumonia and empyema have been most interesting as well as most trying. I have had a chance to see them in the base hospitals, and also to go over the statistics and the figures as they come in from week to week in the office at Washington.

The first thing which strikes one is the apparent difference in the virulence of empyema in different localities. I do not think the difference in the mortality in different places is entirely due to differences in operations, although it has been found that the more exten-

sive operations tend to be fatal. Another thing that is true beyond a doubt is that no one but an idiot would think of using ether for the operations, and the best results in these cases are, of course, from the use of local anesthesia.

Another interesting point to me in considering the prevalence of pneumonia is the fact that the men coming in from the country places where it would be supposed we would find the healthiest boys, are the first to succumb. That was true in the Civil War as well as in this war. It is also curious to note that in one camp there might be a high rate of mortality, and in a neighboring camp under almost similar conditions there would be a comparatively low mortality.

Dr. Gage did not speak of one very interesting thing at Devens, and that is that the introduction of the colored troops from the South brought on a tremendous wave of pneumonia. The morbidity among the colored troops, as I followed it up, was forty times as great as among the whites during the month of April. Those were mostly pneumococcus infections. The Surgeon-General's Office has sent out several units to study this problem, and they are now at work on it. The virulence of the wave has apparently passed, and now we are getting a turn for the better.

I was interested in reading a couple of weeks ago, if I am not mistaken, that Camp Devens is the healthiest place of all the camps. Yet they had the greatest number of pneumonias, and they were probably due to these colored troops.

DR. WYMAN WHITEMORE, Boston: My experience with empyemas has been limited entirely to civil life. Dr. Gage has told us about these cases in camp life, and it may interest you to hear a little about this subject from the civilian side.

All surgeons who are interested in thoracic surgery have been especially interested this last winter and spring in the large number of streptococcus empyemas that have occurred. In February I made an unfortunate statement at a medical meeting, which was true at that time, that in my experience streptococcus empyemas were rather rare, and that when they did occur they were usually fatal. Since then I have had to change this opinion as I

have seen quite a few cases and most of them have gotten well.

The old operation of excising a rib and draining the pleural cavity with one or two large rubber tubes is almost sure death. If one is lucky enough not to have the patient die, the convalescence is a very long affair, one extending over several months, and then the patient is left with a partly or completely collapsed lung and a large pneumothorax.

The technic that I have used is a very simple one. A large trocar is placed into the pleural cavity between the ribs, under local anesthesia, a tight-fitting catheter is slipped through this and sewed very tightly to the skin. The catheter is connected with a long rubber tube going into a bottle that has a little water in it and the end of the tube is under the surface of the water. The operation is done in such a way that no air gets into the pleural cavity during the operation or after. For the first three or four days the patient empties out his pleural cavity by himself, then an electrical suction apparatus is attached to the tube and run according to the rapidity of the accumulation of the streptococcus fluid in the pleural cavity. At about this same time Dakin's solution is put into the chest cavity through the tube and left in two hours; then it is removed and fresh Dakin's put in. Since the first of February I have had 13 cases of straight streptococcus empyema, mostly at the Massachusetts General Hospital and a few in private. Two have died and the rest have gotten well, giving me a mortality of about 15%.

The other method of treatment of these cases that we are particularly interested in at the Massachusetts General Hospital is the Carrel-Dakin treatment. Now I have probably no right to express an opinion about this treatment at present, as we have had the apparatus for about six weeks only and have not had enough cases yet. But during this time I have become somewhat prejudiced against it in the streptococcus cases but not in the pneumococcus cases. In doing the operation one takes out a part of a rib, and immediately establishes a large pneumothorax and a partly collapsed lung. If one could get the pleural cavity sterile with Dakin's solution in a week or ten days, and then close the wound and have the lung expand, I should say it was perfect treatment, but I cannot do this at present. It takes very much longer. There is also a danger of

reinfection. One case that I have had recently got the cavity sterile in about four weeks; the wound was closed. X-ray showed no fluid in the pleural cavity, but a persisting patch of pneumonia in the lower lobe. After running a septic temperature for three or four days, we opened up the cavity again and found considerable pus containing streptococci. In my experience a streptococcus pneumonia takes a good deal longer to clear up than a pneumococcus one, and I believe that this case got reinfected from the persisting streptococcus pneumonia.

I believe very strongly that the pneumococcus cases should be operated upon before the aspiration needle draws out a thick pus. When aspiration shows a turbid fluid containing pneumococci and a high polynuclear cell count, then is the time to operate. The catheter-suction apparatus gives excellent results. When there is thick pus and lymph, I think Lilienthal's operation the one of choice. This may seem a very radical operation to do, but when one becomes familiar with the technic and sees how well patients do, one's prejudice soon goes. I have done seventeen cases this way. All have healed up in from eighteen days to four weeks. One case died, which was very unfortunate, as it was a child that did very well for three days and then had a sudden convulsion and died with symptoms of cerebral embolus. One case healed up in three weeks, left the hospital apparently perfectly well and came back again in two or three weeks with more pus in the pleural cavity. One death in seventeen cases gives a mortality of 5%.

I have been much interested to watch the gradual drop of the mortality at the Massachusetts General Hospital. A few years ago there was a mortality of about 20% in acute empyemas. This is about the same as other large general hospitals. But all cases were operated upon in the same way, taking out a rib, sometimes at the bottom of the cavity and sometimes not. During the last year, from June 15, 1917, to June 15, 1918, there have been 37 cases of acute empyema, 10 of these streptococcus ones and the rest pneumococcus ones, and we have lost just 2, one a streptococcus case and the other a pneumococcus one. This brings our mortality down to 5%.

DR. CLEAVELAND FLOYD, Boston: My observations are entirely bacteriological, based on a series of cases of empyema on Dr. Ladd's serv-

ice at the Children's Hospital. As the result of the use of serum in the treatment of pneumonia by Cole, it seemed worth while to attempt it in cases of pneumococcus empyema. A series of fifteen cases was studied. The type of organism we found to be Type 1 in all but two cases, and in these it was Type 2 and Type 4. The method followed was to irrigate with normal saline after the chest had been drained and then leave in the pleural cavity 10-15 cc. of serum. A study of the pus from time to time as the treatment continued showed a marked diminution of pneumococci, an increase in phagocytosis and precipitins unless the cases were doing badly.

In many instances the length of the convalescence was due to appearance of secondary infection.

If a potent streptococcus serum could be produced it might be worth while to use it in the empyema following measles.

DR. C. L. SCUDDER, Boston: In regard to the Carrel-Dakin treatment, the Rockefeller Institute has been employing this method in their cases of empyema for some time. Dr. Stewart, who has charge there, made a report at Chicago of the cases which they have treated by the Carrel-Dakin method.

The method has been introduced at the Massachusetts General Hospital for the treatment of wounds. I want to say one word of warning and make a suggestion in connection with the employment of this method. It seems to me that the Carrel-Dakin system of treatment depends for its success upon the accuracy with which the details are carried out, and it should not be employed anywhere, either in private work or in a hospital, unless all the conditions are fulfilled which Carrel insists upon. A word may not be amiss as to just what those conditions are. The details of the technic should be in every sense complied with. The solution itself should be standardized and made by a competent chemist. The size of the tubes should be approved by men with as wide experience as Carrel.

For our work at the Massachusetts General Hospital we sent down to the Rockefeller Institute a resident on one of the services, who spent three weeks at the War Hospital taking the course. We also sent a trained nurse, who studied the methods of preparation in the making of tubes, the sterilization, and all the details that go with the technic. We also sent

down a chemist, who spent 24 hours in the laboratory, learning how a standardized solution was made. We now have six people at the Hospital in carrying out this treatment.

We have used the treatment in a limited number of cases. I believe that its success depends primarily upon the care with which it is employed.

The Carrel-Dakin treatment, so-called, has come to stay as a definite procedure in the treatment of septic wounds. I believe that this treatment represents one of the important contributions of war surgery to the surgery of civil life. Its application to the treatment of empyema is apparently wise. It has been employed at the Massachusetts General Hospital in the treatment of other wounds than empyema. In connection with the empyemata the method of employment has been somewhat varied, but in general the plan has been to drain the empyema cavity at its most dependent part and to introduce at this dependent part a rubber drainage tube, and in addition to introduce two Carrel tubes into the upper or highest part of the cavity so that the Dakin solution may be sprayed into the cavity, bathe it completely and be drawn off through the lower tube. By employing this method it has been found possible to disinfect these secondarily infected empyema cavities, to diminish the time of drainage, and to close the opening earlier than under other conditions. I think that the fact that the Carrel-Dakin treatment is able to combat the secondary infection associated with most empyemata is the reason why we may expect that this method will be of permanent value in the treatment of the empyemata, for it is the secondary infections that are the most serious.

SPLINTS FOR TRANSPORTATION.

BY MAJOR KENDALL EMERSON, M.R.C., WORCESTER.

THE war has placed a new onus on the always difficult problem of fixation in cases of fracture and joint injury. Early mortality in cases of compound fracture of the thigh was traced to the lack of proper fixation of the limb during transportation of the injured man from the trench or No Man's Land to the first dressing post. The correction of this error resulted in an immediate and striking fall in the mortality among these cases.

The principle of early and continuous immobilization of fractures was thereupon firmly established and continuity of treatment became the slogan which guided the Medical Corps in its method of handling severe lesions of bones and joints. Splints were devised or adapted which represented in outline at least the mechanical means for permanent treatment of fractures and these splints were rapidly supplied to the advanced zones as well as to the hospitals farther from the line. A patient dressed with one of these splints completes his journey from the front to the Base Hospital in that appliance and perhaps goes on to full convalescence in the identical splint with which he was fitted in the front line trench.

The broad principles of fixation have not changed with the war. Splinting and traction furnish us with the only methods outside of surgical procedures. The differences in the application of these methods are merely such as increase the simplicity and speed of their use.

The value of splints for use in the zone of the advance must be judged for their

1. Efficiency.
2. Simplicity.
3. Adaptability for
 - a. Easy access to wounds.
 - b. Facility in transportation.

The efficiency of a splint must be equal to the best of the splints known in civil practice; that is, it must immobilize as completely as is possible; it must be comfortable; it must be both easy and quick to apply. The rough treatment that splints receive when shipped and the considerable strain they undergo during the transportation of patients requires a sturdy construction and the best of materials. Time is of the utmost importance in the overwhelmingly heavy work often encountered during hard fighting.

The simpler an efficient splint can be made, the greater is its value in war surgery. Splints must be manufactured in very large quantities; they must be packed and shipped in numbers. Economy of material and shipping space is essential. There should be no loose keys or wrenches to be lost, no screw threads to rust or mechanical adjustments to get out of order. Frequently bearers or unskilled assistants must apply them and there should be no complicated principles involved in their mechanism.

Adaptability should be considered at the

front for the sake of minimizing the variety of splints. The more injuries for which a single type of splint may be used the more adapted it is for front line and transport duty. The wound, moreover, should be easily accessible so that the splint need not be disturbed when dressings are done.

It has been stated that the enemy are using plaster of Paris splints for much of their transport work. This material has been tried and largely discarded by both the French and British armies. The various drawbacks will readily present themselves. It is bulky to transport compared with metal splints; it is slow of application, soils disgustingly with wound secretions, is not very strong or durable when put on under the stress of front line work; it is heavy and rather hard to remove and in case of secondary hemorrhage presents a real obstacle to the ligation of vessels when necessary.

Metal or wooden splints are now used by both the British and French armies as splints for front line work and transport, and those enumerated in the following list meet the requirements of efficiency, simplicity and adaptability for use in advanced areas. They are selected from among the many splints in common use by military surgeons and are all of proved value. Moreover, they are all useful in hospitals as well as in field work, which obviates the duplication of types. The list is inclusive and will suffice for the immobilization of any type of wound, but it is not exclusive, as there are many good substitutes of proved efficiency.

They are classified in groups adapted to wounds of the various regions of the body. The description of their application is made as brief as possible, emphasis being laid on minor principles important in advanced work and often differing from hospital methods.

It must never be forgotten that war wounds are more often multiple than single. This is due to the extensive use of high explosives. Methods described for single wounds will be impossible to carry out, and the surgeon's ingenuity must be taxed to adapt the dressing to the individual emergency.

A. Wounds of the Upper Extremity.

1. Hand and forearm. (Straight or coaptation splints of sheet iron or wood).

The sheet iron splints, when obtainable, are the most convenient. They are already padded

with felt and may be bent or twisted to conform to the shape of hand and arm. The 20 inch size is long enough to cover the extensor surface of the arm and reach beyond the tips of the fingers; the 12 inch or 16 inch sizes fit the flexor surface.

If the supply of splints is sufficient, it is always well to use two, posterior and anterior, as better fixation can be secured and there is less danger of the dressing becoming too tight from swelling of the arm. This danger is an ever present one in the dressing of fresh wounds. Swellings may progress rapidly, and many unexpected delays may postpone re-dressing.

Adhesive plaster is often not available and it is well to learn to depend on strips of bandage tied about the splints to hold them securely with adequate pressure. A gauze bandage completes the dressing. The arm should be supported in a sling during transport.

2. Elbow, Arm and Shoulder Joint.

a. Thomas traction arm splint.

b. Jones humerus traction splint.

a. *The Thomas splint* is used in cases serious enough to require transport by stretchers. The sleeve of the soldier's blouse should be cut off and his wound dressed. Fixation is aided by traction. For rapid work this traction is secured by making a clove hitch about the wrist with a doubled length of three inch gauze bandage. The clove hitch should be applied with the bight about the back of the wrist and the knot on the palmar surface to avoid compression of the vessels and to keep the hand extended. It is a better hitch than a slip knot, which tightens uncomfortably when traction is applied and may cause dangerous constriction.

Technic: A definite technic should be acquired in attaching the traction bands to the splint. This saves time, makes a more secure and better looking dressing and one easier to take down at the Evacuation Hospital. Always keep firm traction on the arm. Carry one extension band over an upright, the other under the opposite upright. Then wrap the ends in opposite directions half around the notched cross-piece of the splint. Apply the desired amount of traction by pulling on the traction bands. Complete the wrap about the cross-piece and tie in a square half bowknot. Further traction may be secured by twisting the traction bands with a nail or bit of stick on the principle of the Spanish windlass.

Cross slings should be tied across the up-rights under the arm to give it support and a bandage should be applied evenly about the splint and arm.

The uprights of the splint should not press at any point on the wound or any part of the arm.

The axilla should be well padded with cotton to bear pressure from the ring of the splint.

The hand should not be covered by the bandage as it must be watched for evidence of constriction by the traction hitch about the wrist.

b. *Jones humerus traction splint* is used for wounds above the elbow, particularly ambulatory cases. The wound should be dressed and the axilla padded. Short lengths of bandage are fastened across the horizontal part of the splint for forearm support. A clove hitch extension is then applied to the wrist. Downward traction is made on the humerus by a broad bandage carried over the flexed forearm as near as possible to the elbow and fastened below to the extended part of the splint. Backward and forward supports are supplied for the upper arm by cross pieces of bandage tied to the uprights to correct alignment of the humerus. Light traction is made on the forearm to aid fixation. The arm is bandaged and a sling and circular applied. Coaptation splints may be applied about the arm dressing before fitting the traction splint. They are unnecessary, however, and complicate the dressing.

B. Wounds of the Lower Extremity.

1. Tarsus and Forefoot.

Jones Rectangular Foot Splint. The rectangular splint is small, easy of transport and will partly immobilize the foot for transport. It should be used only in wounds distal to the ankle joint. Many of these travel well without any splint, if protected by a bulky dressing of cotton wool and bandage. The Jones long leg splint may be used whenever the rectangular splint is indicated. The latter may be of great service, however, in double wounds of ankle and thigh when it is used in combination with the Thomas traction leg splint. It is applied by means of adhesive or gauze straps and bandaged firmly to foot and leg.

2. Foot, Ankle and Lower Leg.

a. *Posterior leg splint with coaptation splints.*

1. Wooden posterior splint.

2. Cabot posterior wire splint.

b. *Jones combined ankle and lower leg splint.*

a. *The posterior leg and side splints* give the best fixation for comfortable transport in lower leg and ankle wounds. The drawback to this dressing is that it requires three separate splints. However, a posterior splint should *never* be used without side splints. It gives no lateral retention and the leg often rolls quite off the splint in transport.

The important points in the application of this splint are the alignment of toes and patella, the right angle position of the foot, adequate padding under the knee and the lower leg above the heel to prevent pressure. The foot should be secured firmly to the foot piece and well padded lateral splints should be bound on tightly enough to prevent rotation. If adhesive is available, it is well to suspend the foot from the extremity of the foot piece by means of a wide strip of plaster applied to the sole but not carried under the heel.

b. *The Jones combined ankle and lower leg splint* may be applied outside the clothes. However, dressing of the wound requires their removal, as a rule. The single posterior upright should be bent to fit the curves of the limb. The foot piece should support the ankle at right angles and the curve of the splint below the heel should be sufficient to clear the heel and avoid all danger of pressure. The sheet iron posterior bands should be bent upwards to fit the thigh and calf.

The splint is rapidly applied and easy to pack and transport. However, it fails to immobilize the leg completely because of the lack of lateral support, as the posterior pieces are not broad enough, particularly if the limb is covered with large dressings. This objection may be overcome by adding side splints, in which case it has little advantage over the older type of posterior leg splint. Recent improvements in the splint have largely overcome this difficulty. Folded blankets placed beside the leg on the stretcher make the splint more effective, acting like sand bags to prevent rotation. It must always be borne in mind that splints in transport are subject to unusual jars and strains which call for a broad margin of safety in their efficiency.

3. Knee and Thigh.

Thomas Traction Leg Splint. This is the most useful of all splints for wounds of the lower limb. In addition to knee and thigh

wounds, for which it is especially well adapted, it serves for a lower leg dressing by the addition of coaptation splints or the Jones rectangular splint. It may also be used in many cases of hip joint wound where injury to soft parts is such that a bearing surface for the ring is intact. The splint can be applied very simply over the clothing.

Application. Without moving the leg, the breeches are cut in front from knee to hip and then half way round at the groin and knee. The leg is examined and the wound carefully dressed. Traction is then applied outside the shoe. The *best* method is always the *simplest* in the trenches. Adequate and comfortable traction can be secured with a bandage, which is always at hand and therefore most strongly recommended. Various ingenious substitutes have been suggested and employed, and are worthy of mention. A screw eye may be inserted in the heel of the boot; a nail or skewer may be pressed through the shank of the shoe and cords attached to its projecting ends; a horseshoe shaped wire with inward facing prongs can be hooked over the welt of the shoe on both sides and a traction cord be attached to the ring of the horseshoe. These methods demand special articles sure to be lost or mislaid, while bandage traction is always available.

The technic of the application is important. Take a double length of four-inch bandage a yard and a half long. Place the middle of this traction band back of the shoe just above the counter. Wrap both ends across the instep and round under the sole in the usual figure-of-eight manner. Bring each end up on its respective side and carry it under the lateral part of the bandage behind the malleolus, then over this bandage and directly downward, thus providing two lateral traction bands. The loops should be well back of the malleoli so that the line of traction is behind the ankle joint. A generous pad should be placed over the instep beneath the crossing of the bands to prevent pressure. It must be borne in mind that grave injuries of the leg interfere with its circulation and that pressure sores develop from incredibly slight trauma.

Slip the Thomas splint on gently and fit the ring well at the ischial bearing. Carry each traction band half around the corresponding uprights, passing one over and one under its upright, and then bring each one in opposite directions once about the notched iron piece

at the lower end of the splint and tie with square half bowknot. A nail or bit of wood slipped between the bands below where they have been brought about the uprights may be twisted as in a Spanish windlass to increase the traction at will.

The cut flaps of the breeches leg are brought over the uprights and pinned to give the proper support. Should safety pins not be available, cut holes in the breeches flaps and insert lacings to be crossed under the splint and brought around and tied on the front of the thigh. Cross strips of bandage are tied to the uprights to support the leg. A wire foot piece attached to the uprights serves to support the foot at right angles. Sling the foot to the top of the support by a half hitch about the instep and bandage around boot and foot piece.

A bandage about the whole splint completes the dressing. For speed, this may be applied from above downward, as there is no danger of constricting the limb with a bandage carried outside the uprights of the splint.

A coaptation splint is often used as a posterior splint to increase the support of the thigh. This is desirable but by no means necessary, as the dressing as above described gives adequate and comfortable support.

Transfer to the stretcher. The stretcher should be provided with a heavy splint support which springs on to the side bars. The patient should be carefully lifted on to the stretcher by four bearers. The end of the splint should be slung to the cross bar of the splint support by a bandage, so that the leg clears the stretcher, and also tied to each upright of the splint support to prevent side sway.

4. *Hip and Pelvis.*

A. Long Liston Splint.

B. Straight "bed slat" splint.

A. *The long wooden Liston splint* is a modification of the "bed slat." It has an offset piece of wood carried on angle irons to avoid the prominence of the hip and buttocks and to give opportunity for dressing the wound. It also has an adjustable foot piece, making the splint reversible for use in either limb. It is applied outside the clothing and before moving the patient by means of a swathe or wide bandage about the trunk, and straps and bandages about thigh, leg and foot. Triangular bandages are useful for both swathe and thigh bandages.

B. The "bed slat" splint is a simple straight board preferably 4 or 5 inches wide, extending from the axilla to below the sole of the foot. It must be padded liberally opposite trunk and limb to avoid too much pressure over the pelvis.

5. *Spine, Cervical, Dorsal, Lumbar.*

There is no splint commonly used for wounds of the spine. If a Bradford frame is available, it is well to get a patient on it at once to avoid moving him again. To do the dressing, it may be necessary to turn him on his face. Be as gentle as possible, and always have three or four men move him and caution him not to try to help himself. Cut off the clothing. Dress the wounds. Prepare a stretcher with folded blankets corresponding to the normal curves of the back. In cervical injuries, keep the neck slightly extended. In dorsal injuries, extend moderately by blanket under the shoulder blades. Some steadying support may be secured by putting traction on both legs attaching the bands to the uprights of a splint support fastened to the stretcher. Counter traction may be quickly secured by a head sling made from two doubled 2-yard lengths of four inch bandage, the middle of one passed under the chin and the ends brought up in front of the ears: the other, in front of the chin and the ends crossed under the occipital protuberance brought forward and both bandages tied together at the sides of the head just over the temporal region. The two bands may be fastened to the handles of the stretcher, the apparatus serving to steady the patient during transport.

Clinical Department.

ULTRA-VIOLET LIGHT FOR BOILS: A CASE REPORT.

BY JOHN BRYANT, M.D., BOSTON.

SINCE antiquity, boils have not ceased to afflict humanity, and boils have caused much misery, especially in those individuals particularly subject to them. The great number of proposed cures testify to such a lack of adequate treatment that it seems worth while to record a case in which a strikingly successful result was obtained by the use of the quartz lamp.

Mr. O., aged 66, had for many years suffered from boils. On May 29, 1917, he was seen in the morning, and it was incidentally observed that the left side of the nose was very red. On the evening of the same day Mr. O. reported for treatment of the nose condition. By this time the entire left side of the nose was fiery red and decidedly painful, and according to past experience the outlook was for several days of disability. It was determined to try the quartz lamp. A local exposure of five minutes at a distance of 20 cm. was given. The next morning it was evident that decided improvement was already in progress. A second similar exposure of ten minutes was given, followed the same evening by a third exposure of fifteen minutes also at a distance of 20 cm. This completed the treatment. No more was needed, as the threatening boil had disappeared, leaving in its stead merely a skin area reddened by the lamp. Two days later the nose was normal except that the skin was peeling from the effects of the light, but at the urgent request of the patient a precautionary exposure of twenty minutes was given. There was no recrudescence of the furuncle. Mr. O. was enthusiastic.

SUMMARY.

In an elderly gentleman subject to boils, a very formidable looking furuncle on the nose was caused to disappear in twenty-four hours as a result of three brief exposures to ultra-violet light from a quartz lamp.

The simplicity and celerity of the method was appreciated by the patient. An agent which can accomplish such a result should be more widely known and used in the treatment of an affection which, if not serious, is a frequent cause of pain and disability.

NEW ENGLAND TO SUPPLY 1958 MORE WAR NURSES.—In the campaign which the Red Cross is conducting to enlist 27,000 nurses by January 1, the Atlantic division, composed of New York, New Jersey and Delaware, leads in actual enrollment. Of the allotted 5708, 45 per cent., or 2600, have been enrolled, leaving 3108 to be secured. The New England States have assigned 1360 nurses, or 41 per cent. of their allotment, with 1958 nurses still to be recruited.

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EXPERIMENTS WITH POLIOMYELITIS.

THE United States Public Health Service has recently issued Bulletin Number 111, which contains four interesting articles dealing with myelitis and poliomyelitis. The first article, by N. E. Wayson, discusses the pathology and pathogenesis of myelitis. "A review of the studies on the pathology and pathogenesis of myelitis show that the various hypotheses as to the genesis of its different forms have strongly supportive evidence, but no theory carries an overwhelming amount of this evidence. There seems to be, from the anatomic-pathological viewpoint, no reason for great dispute, since the various histological changes are seen in the different types of the condition, apparently dependent upon the rapidity of the process, in turn dependent upon the virulence of the infectious material for these structures. The localization in the cord seems dependent upon the mode of entrance and probably upon a specific factor (trauma in transverse myelitis).

Extension through one or another system of the cord lends itself readily to the explanation afforded by anatomical structure."

The second article, by J. P. Leake, dealing with experimental poliomyelitis, describes experiments with virus of human origin obtained during epidemics, one in New York and one in Virginia, and with material from domestic animals associated with cases of human poliomyelitis. The uniformly positive results following the inoculation of material from New York cases was unusual, and their interpretation difficult. "Possibly they signify high virulence of the epidemic; or they may be due to the use of 100 per cent. glycerin for preserving the virus. The virus has shown classical infectivity on passage through a series of monkeys, and has been filtered through both Berkefeld and Chamberland filters. Attempts at infection by way of the nasal and alimentary tracts were unsuccessful, though possibly immunity was produced once by the latter method. The neutralization test with this virus was shown to be of questionable value. Infection with the winter strain (West Virginia) of poliomyelitis protected against the 1916 summer strain (New York). The serum of a horse treated with the virus of poliomyelitis produced no demonstrable immunity in monkeys. None of the paralyzes in domestic animals, such as are so frequently reported during an epidemic of poliomyelitis, were shown to have any relation to the disease in people."

Another series of experiments, attempting to induce poliomyelitis in small laboratory animals, is described by A. M. Stimson. No evidence was adduced by these experiments to show that rabbits, guinea pigs, or rats are susceptible to poliomyelitis. Other observers have reported the successful infection of rabbits and guinea pigs with poliomyelitis. As this method did not differ essentially from those described in this article, the author believes that the discrepancy must be attributed to one or other of the following causes: either the strain of virus employed differs in its pathogenic properties, or it is contaminated with some organism capable of producing these symptoms in small animals.

Attempts to cultivate the virus of epidemic poliomyelitis have been described by N. E. Wayson. The technic of Noguchi and Roseow is

explained. Numerous diplococci and streptococci have been cultivated from the spinal cords and brains of human and monkey subjects which showed, clinically and histologically, the findings in acute epidemic poliomyelitis. None of the organisms cultivated reacted in the small laboratory animals or in the monkeys with clinical or histological evidence of the disease. The attempt to reproduce Noguchi's and Rosenow's results was negative, though involving approximately 700 cultures and 300 animal tests.

ENROLLMENT OF NURSES.

IN another column of this issue of the *Journal*, we have published an appeal "To Physicians of America." The attention of physicians is directed to this appeal and to their responsibility in aiding to release nurses for war service. In order to secure 25,000 graduate nurses by January 1, many nurses must be withdrawn from civilian practice, and those who remain must be utilized as far as possible for public health service. It is the duty of physicians to conserve nurses for positions of utmost usefulness, by relieving them from office duty, employing them only when skilled attendance is indispensable, and by urging patients either to go to hospitals or to employ public health nurses. Sending nurses to the front means increased work for physicians who must maintain public health at home, but let us make this personal sacrifice and encourage our nurses to render their services to those who need them most, the fighting men in France.

VOLUNTEER MEDICAL SERVICE CORPS.

ATTENTION of physicians is earnestly directed to the statement, published in another column of this issue of the *JOURNAL*, explaining the purposes and plans of the Volunteer Medical Service Corps. Blank forms of application for membership in this Corps have been distributed, and every doctor who has not already filled out and made his return, should do so without delay. It is a duty which he owes to the dignity of his profession as well as to his country.

MEDICAL NOTES.

BUFFALO DEPARTMENT OF HEALTH.—The annual report for 1917 of the Buffalo Department of Health shows the lowest death rate for a number of years and a birth rate substantially increased. The number of deaths due to typhoid fever has been relatively the lowest in the history of the city. The work of the Medical School Inspectors increased to such a degree that twenty-five Medical School Examiners and twenty-one nurses were needed, instead of the original number of five examiners and one nurse. The Open Air School system has been established wherever possible, by coöperation with the school department. The divisions of infant welfare and child labor have been carried on efficiently. The great decrease in infantile intestinal disturbances may be attributed to the educational methods adopted by the food inspection department. Among the most important innovations was the inauguration of five Health Centers, which care for the needs of their respective localities. The problems of social hygiene and housing have presented numerous difficulties to the Health Department. At the present time, Buffalo's hospital facilities offer 973 beds available for patients requiring treatment. Detailed statistics and tables are included in the report.

WAR NOTES.

DORCHESTER DOCTOR IN ARMY MEDICAL CORPS.—Dr. Carleton E. Allard of Dorchester has been commissioned a lieutenant in the medical corps and will leave soon to begin training for overseas duty at Camp Dix, New Jersey.

LIEUTENANT FRANK MACGREGOR HONORED FOR BRAVERY.—Lieutenant Frank Harrison MacGregor, of the United States Medical Service, attached to the Seaforth Highlanders, has been decorated by the British for conspicuous bravery. According to the official citation, he "displayed the greatest devotion to duty. Three hundred casualties passed through his aid post established in the open on July 23. Although orderlies and attendants were killed all around him, he continued attending to his medical duties and the example he set won the admiration of all ranks. The conduct of this officer during the whole operations was exemplary and merits the highest award."

MEDICAL PROMOTIONS.—Brigadier-General Merritte W. Ireland, in addition to thirteen other officers of his rank, has been promoted to the rank of major-general, and nominated for assistant surgeon-general.

SLOVAKS UNDER RED CROSS CARE.—The Red Cross war council has been advised by cable from Vladivostok that more than 20,000 Czecho-Slovak refugees, 4000 of them children, are being cared for by the American Red Cross at that point.

The cablegram also contained the statement—important in view of the efforts of the Bolsheviki government at Moscow, to make it appear that there are no armed German or Austrian prisoners threatening the Czecho-Slovak in Siberia—that the Red Cross medical organization at Vladivostok is also attending hundreds of wounded Czecho-Slovak soldiers “who have reached Vladivostok after weeks of the most desperate fighting against the pro-German forces.”

The condition of the refugees, who were found living in tents and freight cars along the Chinese eastern railway west of Harbin, was pitiable. A majority of them are farmers, though there are many coal miners and railway employees in the number, people who were driven from their homes by the Bolsheviki and the German and Austrian war prisoners.

The work of ministering to the wounded Czecho-Slovak fighters, who have steadfastly refused to recognize the Bolsheviki-German peace, and relieving the distress of the homeless civilians was started the moment their plight was brought to the attention of the Red Cross. The relief work was directed by Charles K. Moser, American consul, and head of the Red Cross chapter at Harbin. Red Cross chapters at Tokio and Shanghai gave valuable aid. While waiting for instructions from America, they went ahead and raised funds in Vladivostok which provided temporary relief for both soldiers and civilians.

On the authorization of the American Red Cross, Dr. R. B. Teusler, head of St. Luke's Hospital at Tokio, hurried to Vladivostok with necessary hospital supplies and perfected a medical organization to care for the incoming wounded soldiers. This organization, now complete from a medical and sanitary standpoint, consists of a base hospital with a bed capacity

for 200. One rolling canteen, two sanitary trains, one field first-aid unit and a disinfecting train, will also be available for the American and allied soldiers now in Vladivostok or on the way through. There are now in active service with this unit 14 American and seven Japanese doctors and 15 American and 17 Japanese nurses. All the American doctors are volunteering their services. Dr. Teusler hopes to enlist 30 additional American doctors and 50 American nurses in the Orient.

WORCESTER PHYSICIAN IN SERVICE.—Doctor A. E. P. Rockwell, of Worcester, Massachusetts, is serving as Contract Surgeon on the Neuro-psychiatric Board at Camp Custer, Battle Creek, Michigan.

MEDICAL MEN GIVEN CROSSES FOR HEROIC SERVICE.—Distinguished Service Crosses have been awarded by General Pershing to the following medical men of the American Expeditionary Forces for acts of gallantry:

Private Fred Gunn, medical, infantry: “At the battle of Cantigny, 28-31 May, he repeatedly, on his own initiative, left the security of the trench to administer first aid under fire and in full view of the enemy snipers and machine gunners. His brave conduct was a noble example, and his ministrations relieved suffering and saved lives.”

Private John When, medical, infantry: “For three nights at Cantigny, on 28-31 May, he worked unceasingly under fire, bringing the wounded to safety and ministering to them on his own initiative. He repeatedly left shelter to help wounded men.”

NAVY HOSPITAL SHIP DELAYED.—The Navy hospital ship *Comfort*, which was to have sailed without convoy or guns, with flags flying by day and lights blazing at night, has been delayed. The Germans have been sinking hospital ships as plainly marked as the *Comfort* was to be, and the Navy Department has thought it unwise to send it out protected only by the righteousness of its mission.

Officially the reason for the failure of the *Comfort* to sail is that no necessity has arisen that demands her presence in the war zone. The Navy has had few wounded and these have

been accommodated in various hospitals abroad.

There is plenty of accommodation for any who must come home on the returning transports, which during the week ending Aug. 23, landed 423 wounded and sick soldiers in the United States.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Aug. 31, 1918, the number of deaths reported was 192, against 217 last year, with a rate of 12.76 against 14.65 last year. There were 45 deaths under one year of age, against 46 last year.

The number of cases of principal reportable diseases were: diphtheria, 31; scarlet fever, 5; measles, 13; whooping cough, 22; typhoid fever, 14; tuberculosis, 51.

Included in the above were the following cases of non-residents: diphtheria, 4; scarlet fever, 1; whooping cough, 2; typhoid fever, 1; tuberculosis, 8.

Total deaths from these diseases were: diphtheria, 3; whooping cough, 5; tuberculosis, 17.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 2.

SALEM HOSPITAL BEQUEST.—Under the will of the late Jasper R. Pope of Beverly, Mass., \$25,000 are bequeathed to the Beverly Hospital.

Miscellany.

VOLUNTEER MEDICAL SERVICE CORPS.

THE COUNCIL OF NATIONAL DEFENSE authorizes the following statement:

Many thousands of blanks for enrollment of the legally qualified men and women physicians of the country in the reorganized Volunteer Medical Service Corps are being mailed by the chairman of the General Medical Board of the Council of National Defense. With the blank are enclosed a letter and a folder giving all details as to the organization.

The blank which applicants are asked to fill out reads:

APPLICATION FOR MEMBERSHIP IN THE VOLUNTEER MEDICAL SERVICE CORPS AUTHORIZED BY COUNCIL OF NATIONAL DEFENSE, APPROVED BY THE PRESIDENT OF THE UNITED STATES.

(Space for date, full name, street, city and state addresses.)

1. Date of birth.
2. Place of birth.
3. If foreign born, when did you become a resident of the United States?
4. When and where naturalized? How?
5. Are you single, married, widowed, or divorced? Nationality? Color? Height? Weight?
6. State high school, academy, college, or university you have attended, with dates of attendance, graduation, and degrees received.
7. Give all literary or scientific degrees you have received and names of institutions granting them, with dates.
8. With what languages or branches of science are you familiar?
9. When and where graduated in medicine?
10. When and where licensed to practice medicine?
11. Name principal medical societies of which you are a member. (Do not abbreviate.)
12. What specialty of medicine do you practice?
13. Proportion of time devoted to specialty?
14. Clinical experience in specialty? Institution? No. of years?
15. State all past hospital services. Hospital? Capacity? Date.
16. Present hospital connections. Hospital? Department? Capacity?
17. School and teaching positions occupied in the past. School? Capacity? Date.
18. School and teaching positions now occupied. School? Department? Capacity?
19. State all past experience in industrial or railroad medicine and surgery. *Name and address of plant. Type of service* (whether medical, surgical, occupational diseases, accident work, contract practice for families of workmen, etc.) *Duration of service.*
20. State all present connections with industries or railroads. *Name and address of plant. Type of service* (whether medical, surgical, occupational diseases, accident work, contract practice for families of workmen, etc.) *Time devoted to each plant.*
21. State military, naval or public health experience you have had.
22. Are you a Federal, State, County or Municipal officer? (State exact designation of your office.)
23. Are you engaged in enterprises other than medicine? If so, what?
24. Have you followed any occupation, medical or otherwise, not already noted?
25. Have you previously been an applicant for entry into the United States Service? When? Where? Result? (If rejected state why.)
26. I have not applied for appointment in the Medical Reserve Corps of the Army, the

Naval Reserve Force, or the Public Health Service owing to (Check reason).

- (a) Physical disability. (State disability in detail.)
 - (b) Over age (55). (State age in years.)
 - (c) Essential institutional need. Name of institution. Position. Name and address of chief executive.
 - (d) Essential community need. Approximate population. Number of physicians now practising in your community.
 - (e) Essential to health department. Name of department. Position. Name and address of chief of department.
 - (f) Essential to industries. Name of plant. Position. Name and address of chief executive.
 - (g) Essential to medical school. Name of medical school. Position. Name and address of dean.
 - (h) Essential to local or medical advisory boards. Name and address of board. Position.
 - (i) Dependents. Number of dependents, including self but not employees. What proportion of your income or that of your dependents is derived from sources other than the practice of your profession? Do other persons contribute to the support of your dependents? Have you or your dependents other immediate relatives who could provide support for your dependents.
 - (j) Sex. (State your sex.)
 - (k) Religious conviction, not a citizen, or other reasons. (State reason.)
27. Are you available for any of the following services:
- (a) Consultant. Medical service. Surgical service. Public Health Service. Special service—What?
 - (b) Institutional. Laboratory. Administrative. Medical service. Surgical service. Special service—What?
 - (c) Medical service for industries. Part time. Full time. Own community. Other communities. Kind of work.
 - (d) Local or medical advisory boards.
 - (e) Reclamation of registrants rejected for physical unfitness.
 - (f) Services to needy families and dependents of enlisted men.
 - (g) Sanitation.
 - (h) Miscellaneous service.
28. Check the governmental service in which you would prefer to serve if selected.
- (a) Medical Reserve Corps of the Army.
 - (b) Naval Reserve Force.
 - (c) Public Health Service.

NOTE—Wherever practicable your preference will be given consideration. However, the exigencies of war may render it necessary to ask you to do service other than that indicated as your choice.

29. Personal references. (Name three, at least one physician.)

I hereby make application for membership in the Volunteer Medical Service Corps of the United States. I certify that, to the best of my knowledge and belief, the answers to the preceding questions are true and correct in every respect. I pledge myself to abide by the rules and regulations of the Corps; to apply for a commission in the Medical Reserve Corps of the Army, the Naval Reserve Force, or for appointment in the Public Health Service when called upon to do so by the Central Governing Board; and to comply with any request for service made by the Central Governing Board.

(Signature)

(Present post-office address)

An outline of the purpose and scope of the Volunteer Medical Service Corps, contained in the folder, is as follows:

VOLUNTEER MEDICAL SERVICE CORPS ORGANIZATION

1. Provides means for obtaining quickly men and women for any service required.
2. Furnishes recommendations and necessary credentials to assure the best of medical service, both military and civil.
3. Determines beyond question the attitude of the individual toward the war.

OBJECT OF CORPS.

1. Placing on record all medical men and women in the United States.
2. Aiding Army, Navy and Public Health Service in supplying war medical needs.
3. Providing the best civilian medical service possible.
4. Giving recognition to all who record themselves in Army, Navy, Public Health activities, or civilian service.

WORKING PLANS.

All matters pertaining to the organization will be under the direction of a Central Governing Board, authorized by the Council of National Defense and approved by the President of the United States, and its affairs will be conducted from the general headquarters of the Volunteer Medical Service Corps at Washington, D. C., under the Council of National Defense.

OPERATING SYSTEM.

1. Central Governing Board of 25.
2. Forty-nine State executive committees.
3. One representative in each county in every State.

- NOTE.—(a) All men to be appointed to State and county committees preferably over 55.
- (b) Each State executive committee to consist of five in the smaller States and one additional member in each of the larger States in proportion to each 1000 medical inhabitants (to be nominated by State committees, Medical Section, Council of National Defense, from among their own members).
- (c) Each county of 50,000 population or under should have one representative. All count-

ies having over 50,000 population should have one additional county representative for each 50,000 population or fraction thereof. All county representatives to be nominated by the State executive committee.

DUTIES.

Central Governing Board. To receive and pass upon all appointments.

State Governing Boards. To receive facts from county representatives and make recommendations to Central Governing Board.

County Representatives. To submit facts to State Committees according to advice from Central Governing Board or State Executive Committees.

Under the reorganization, every legally qualified physician, man or woman, holding the degree of Doctor of Medicine from a legally chartered medical school, who is not now attached to the Government service, and without reference to age or physical disability, may apply for membership and be admitted if qualified; whereas, the original organization admitted only those who, for various reasons, were ineligible to membership in the Medical Reserve Corps. The organization will mobilize the medical profession in order to provide for the health needs of the military forces and the civil population, and the recording and classifying of doctors will afford means of obtaining quickly men and women for any service required.

To date about 40,000 of the 144,116 doctors in the United States—not including the more than 5,000 women doctors—either are in Government service or have volunteered their services. Up to July 12, the Surgeon-General had recommended to the Adjutant-General 26,733 doctors for commissions in the Medical Reserve Corps. About 9,000 others who applied were rejected. With the 1,194 in the Medical Corps of the National Guard and 1,600 in the Navy, the total—37,527—constitutes 26.73% of the civilian doctors. Deducting those who declined their commissions or who have been discharged because of subsequent physical disability or other cause, the number actually commissioned in the Medical Reserve Corps stands (August 23) at 23,531, with several hundred recommended whose commissions are pending. Of the 23,531 there are 22,232 now on active duty.

The need of using wisely the service of the medical men, in view of the universal war activities, is indicated when it is known that in the five weeks ended August 2, there were 2,700 medical officers commissioned in the Army, Navy, and Public Health Service—or at the rate of 540 per week. This rate at which enrollment is proceeding is the cumulative result of the operation of all the machinery which has been in process of setting up since the United States entered the world war. While the number commissioned in the five weeks mentioned may seem large, it is not much greater than the

rate at which medical men have been receiving their commissions during the past year. There are now 28,674 medical officers commissioned in the three services—26,027 in the Army, 2,427 in the Navy, and 220 with the commission of Assistant Surgeon in the United States Public Health Service. Of the 2,700 commissioned in the five weeks ended August 2, there were 2,527 in the Army, 169 in the Navy and 4 in the United States Public Health Service. Also, 40 doctors designated as Acting Assistant Surgeons have been taken on in the Public Health Service in the last two months, 21 for work in extracantonment zones, 14 for special venereal disease work, and 5 for marine hospitals. The 26,027 in the Army medical service comprise 933 in the Medical Corps, the regular Army service; 23,531 in the Medical Reserve Corps; 1,194 in the Medical Corps of the National Guard, and 369 in the Medical Corps of the National Army.

It is estimated that at least 50,000 doctors will be necessary eventually for the Army. It can readily be seen that with the enrollment of these active men, their places in communities and institutions must be cared for and the work, therefore, throughout the country must be so systematized and coördinated that the civilian population may not suffer. An important aspect is the need for medical men in the communities where munitions and other vital war products are being made.

The Volunteer Medical Service Corps, supervised by the Central Governing Board now named, will thoroughly care for these needs.

In connection with the mailing of membership blanks for the Volunteer Medical Service Corps to all legally qualified men and women doctors of the country, Dr. Franklin Martin, Chairman of the General Medical Board of the Council of National Defense, says:

"Great as has been the response to the appeal for doctors, it must be greater. It is imperative that every doctor not already in a Government service fill out, sign and return the blank to the offices of the Central Governing Board, Council of National Defense, Washington, at once. We believe thousands will do this, as they are anxious to be enrolled as volunteers for the medical departments of the Army and Navy before registration under the new draft law goes into effect. The appeal for enrollment in the Volunteer Medical Service Corps, which President Wilson has formally approved, is an official governmental call to service. This will place the members of the medical profession of the United States on record as volunteers, available for classification and ready for service when the call comes."

Correspondence.

ANTIVACCINATION AND TWO OTHER CRAZES.

Westport, Essex County, New York.

August 28, 1918.

Mr. Editor:—

I agree entirely with the editorial of Dr. Samuel B. Woodward in your issue of August 15, 1918, on the subject of antivaccination. The craze of the antivaccinationists is of the same order, although worse in its effects, if they were, alas, to succeed, than the two other crazes which are also rampant at the present time—I mean national prohibition and New York State narcotic drug law. The former is, to me, an almost unmixed evil, as I have tried to show more than once, but without, apparently, much good effect. My views, briefly, about the latter are shown in my letter, recently published in the *New York Evening Sun*. I trust you may forcibly and favorably comment upon its purport and thus help re-establish sane legislation upon a matter which affects nearly every practitioner of medicine and not a few of the greatest sufferers from disease or accident.

BEVERLEY ROBINSON, M.D.

CHILDREN'S PAVILION OF SHARON SANATORIUM.

Boston, Sept. 6, 1918.

Mr. Editor:—

May I ask you to call the attention of the medical profession to the fact that the Children's Pavilion—a recent addition to the work of the Sharon Sanatorium at Sharon, Mass.—is now ready for occupancy. It is a combined school and sanatorium for children between seven and fourteen years whose parents are of *very moderate means*, and it is intended to receive cases in the early stages of pulmonary or glandular disease, or anemic, debilitated children of suspected tuberculous tendency. It is not intended, as a rule, for surgical cases. The charge per week is moderate and utterly inadequate to meet the outlay, and the institution is largely dependent upon the public for support, as it has been for the 27 years of its existence, during which time it has received women of limited means only. It should be distinctly understood that the sanatorium is intended for the people who stand between the well-to-do and the very poor,—often the hardest class to reach. The State is now making earnest endeavors to receive the increasing number of soldiers who are tuberculous. The Sharon Sanatorium has already received the wives of soldiers and doubtless before long widows and orphans will be applicants. The new pavilion offers special advantages to the latter for treatment and instruction. It is earnestly hoped that the medical profession will avail themselves of the advantages of this modern institution, founded through the generosity of philanthropic people.

Application for admission should be made to the Superintendent, Dr. Walter A. Griffin; and for children to Dr. Henry I. Bowditch, 28 Bay State Road, Boston; or to myself.

Very truly yours,

VINCENT Y. BOWDITCH,
506 Beacon Street.

REGISTRATION IN MEDICINE.

Boston, September 4, 1918.

Mr. Editor:—

At the time the Legislature passed the law requiring physicians to register with city or town clerks, many practitioners in this State were very much disturbed, and violently denounced the law and criticised the proponents of this measure.

The Supreme Court of Iowa, in the case of *Lynch vs. Kathmann et al.* (Ia.) 163 N. W. R., 408, not only sustains the constitutionality of a similar law, but presents cogent reasons why the requirement is a reasonable regulation.

Some States require yearly registration of physicians, and where this plan has been adopted it has been found to be of value in providing approximately up-to-date information of the number and location of physicians in such States.

Physicians in this State should realize that our law was made as simple and free from burdensome features as possible, but should also understand that no physician can legally conduct practice until local registration has been attended to, and, furthermore, they cannot compel the payment of fees without meeting this requirement of law.

There may be some who have omitted complying with this requirement and who may be unwittingly liable to prosecution and loss of income, for the Directory of the American Medical Association gives the names of a considerable number of physicians not reported by the cities and towns.

It is to be hoped that there will be no further need of calling attention to this matter in order to secure compliance with this law.

Respectfully,

WALTER P. BOWERS, *Secretary*.

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—Regular meeting, 4.15 P.M., Wednesday, Sept. 11, 1918, in G.A.R. Hall, 55 Pearl Street, Worcester.

Address by Dr. Perley P. Comey, Augusta, Ga. Subject: "A Northern Physician's Work in the South."

Fellows will please note that this Society, by vote at the last annual meeting, sanctioned the charge of \$3.00 for day calls in this city and a proportionate advance in office and other fees, and similar action in localities where a lesser fee has been in vogue. Uniformity of action herein is asked of the Fellows.

GEORGE A. DIX, *Secretary*.

SPRINGFIELD ACADEMY OF MEDICINE.—The first meeting of the year 1918-1919 will be held on Tuesday evening, September 10.

Report of case: "Congenital Pyloric Stenosis," D. F. F. Dexter.

Address: "The Treatment of Cardiac Disease as Influenced by the Complete Examination by Modern Methods," Dr. Louis S. Bishop, New York.

Discussion opened by Dr. E. A. Bates, "Internist's Viewpoint"; Dr. F. B. Sweet, "Surgical Aspects."

General Discussion.

Meeting begins at 8.30 sharp. Please be prompt.

DR. L. D. CHAPIN, *Secretary*.

RECENT DEATH.

WILLIAM EDWARD EMERY, M.D., of Beverly, M.R.C., died of meningitis at Fort Ogelthorpe, Ga., June 11, 1918, aged 28 years.

The Boston Medical and Surgical Journal

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FATIGUE AND EXHAUSTION. REMARKS ON PHENOMENA AND ENERGY RENEWALS.

BY J. MADISON TAYLOR, A.B., M.D., PHILADELPHIA,
Professor of Applied Therapeutics, Medical Department, Temple University.

A HEALTHY body, the mind being the main part, renews itself after work, completely under favorable conditions, and incompletely under disadvantageous ones. Work, performance of function, is essential to structural integrity. Play is a normal part of the day's doings, not a thing apart nor capable of being omitted with safety. Play in young or old reflects or mimics the acts of war, the chase, industries, domestic doings and the like. Play is change and supplies the major condition for energy renewals and is only second in importance to rest.

The most agreeable work is the least fatiguing. Any work can and should be made more or less agreeable. The pleasurable of effort depends entirely on the mental attitude of the person making it. Even the severest and most repugnant of toil is capable of being immensely lightened by improvement in the point of view taken and held.

Of course much depends upon those who im-

mediately direct and control. Since most forms of industry involve managers, foremen, "bosses" who are also themselves workers, this golden rule of mutuality obtains all along the line from the bottom to the top. Overseers of work cannot afford to omit their part in contributing to the output, not only of material but of comradeship. The director may not safely remain too far away to be fully aware of what goes on.

The cycle of efficient energizing is thus conditional upon a fundamental law of economics which obtains for every single industrial unit. The law or principle of coöperative action is so obvious it should need little proof or illustration. Attention, however, should be directed to it from time to time. Coöperation should be writ large in every factory, workshop, office and director's room, especially. No one is exempt from the obligation to work. When work as a privilege becomes a part of human habitudes, and is accepted by each and every human being, there need be no labor troubles except such as are based on considerations for the comfort of the laborer or the amount and quality of output.

The one practical method of obtaining universal industrial contentment and efficiency is obviously for capitalists to study and apply those conditions found capable of best main-

taining the welfare and cheerfulness of workers. Such questions as length of hours of work come directly under this head (of mutualization), and much is now known and being learned by scientific research of the quality of muscle and brain fatigue as effected by environmental conditions. Man must learn to dominate his environment, not be dominated by it, or he fails on the first step in the ladder of adaptation.

The chief difficulty in acting in full accord with economic facts lies in pitiful obstinacies and prejudices, occasionally (too often) shown by both capital on the one side and labor on the other. There is no more separateness between capital and labor than there is between mind and body; they are each one and the same, indivisible: they cannot be set apart even for purposes of full description. One is dead without the other. And the crux of production is the question of fatigue.

Fatigue may be described as the evidence or result of strained attention, in which the factors are partly mental or emotional weariness. It is chiefly due to protracted overuse of motor mechanism, but eye strain and brain strain are shown long before the effects of muscle strain.

Exhaustion is fatigue carried to a point where spontaneous restitution fails to follow, and the structures—cells and fluids—suffer injuries more or less serious and irremediable.

The phenomena of fatigue are due to the formation of waste products in the cells which require to be gotten rid of as promptly and completely as possible. While they are present the normal action of the cells is interfered with more or less, shown by diminutions in accuracy of sensory responses, of cellular adjustments, of structural efficiencies, of nervous and mental control, in short, of impairments in precision of action and reaction, hence interaction and equilibration.

These include always losses in control of parts, as well as niceties in the working action (psycho-physiology) of those parts. So powerful is the effect of the mind and emotions on work that fatigue feelings begin, as a rule, long before the structures are materially affected.

Hence appeals to the emotions, to the sense of loyalty, or to ambition, or to the mere sensory impulsions, will arouse one to renewed or even greater effort, and this can be sustained for periods consonant with the amount of resident energy present.

Fear also is capable of producing similar results. A break in monotony of a pleasurable kind, the introduction of some personal encouragement by a boss, or better, by a member of the firm, or, best of all, by a visitor who is interested in the kind of work being done, will rouse flagging energies toward the middle of an afternoon. Music played so that all the workers can hear it is immensely helpful, and this is supplied as energy tides subside in some large department stores.

Since continued fixed attention upon any form or kind of labor is the most fatiguing factor, a brief change from action to rest, or from a cramped position, a continuity of eye strain, etc., to rapid movement, promptly sets up and reinvigorates one.

The primary and predominant factor in practically all forms of recreation is the mental and emotional (psychical) stimulus afforded. All play for young and old, as has been said, reflects in some kind or degree primitive industries, war, the chase, joy, triumph, mourning. A change being wrought in the emotions will effect vastly more than mere cessation of fatiguing motions. Whatever diversions or amusements produce promptest, most satisfactory effects on both mental and physical states are precisely those in which the psychical impression is the strongest. The primary requisite for what may be termed successful recuperation is a complete diversion from self-attention, a submergence of self-consciousness which sets aside and checks that persistent introspection of our physical selves,—the foundation of half the morbidity of the world.

Whatever one does for the sake of the doing, or for one's own advancement or higher satisfaction, is closely akin to recreation. Some charm is always to be discovered in one's work capable of supplying this need. Certain ideals of accomplishment are always possible to be formulated or reached, capable of giving a lot of satisfaction. You will notice the best work people in any line are those who take a pride in showing how well they do their work and what results they get,—whether they definitely contrast their own with another's may not appear; the implication is obvious, however: they regard themselves as superior.*

Ideals of work—"the points of a good job"

* I was present when Charles Schwab made his first address to the workers at Hog Island Shipyard. He has a marvellously sympathetic personality and swept all the men into his heart by declaring: "I have worked with thousands of men, but no man ever worked for me."

—Richard Cabot says, should be taught in the course of any or all forms of primary education.

By the same token, appreciation by another, by an employer, by the public, amplifies capacity for effort. Rest which follows is more complete, zeal is maintained; so are nutrition, elimination, and health appreciably enhanced.

The first effect of work on a muscle is to increase its activity, a "warming up" process. This is due partly to the formation of waste products (CO_2 , lactic acid, acid potassium phosphate, etc.), which in moderate amounts stimulate muscle action. In too large amounts they act as poisons, causing feelings of fatigue, not only in the muscles but all over the body and brain. Herbert Spencer, a delicate, frail man, tells how he was able to dictate certain of his great works for fifteen minutes only, then row in a boat for fifteen minutes, and rest lying down fifteen minutes—then beginning again to dictate.

Mental influences on work are both excitatory and inhibitory. Every one knows how enthusiasm to accomplish a bit of work will carry one far beyond one's ordinary capacity for effort or endurance, and no harm done. Also how, while in the full flood of comfortable toil, a distressing bit of news, an unkind word, a cause for anger will interrupt the flow of energy, diverting or checking it to other channels, being followed by motor and other functional confusions, hence weariness and disease.

Competition with another or with one's own standards of achievement is excitatory. Such stimulation must be just enough and not too much, however; must urge one only to a degree fairly well within one's capacities. If too severe a struggle is aroused, or if too lofty ideals are formed, discouragement follows. By attempting the impossible, effort may be killed. It is well, as accomplishment improves, to raise the standard gradually. This is notably the case in athletes, race horses, and in other forms of exciting competitions.

Pain is a familiar inhibitory influence. Long-continued use of the muscles causes pain, "a feeling of fatigue"; similarly, of slight shocks. Example: In walking, one falls, bumps the back or the head, or twists an ankle. Instantly all energy seems to ooze out, one wishes to sit or lie down. The primary effect of

this inhibition is an instinct of survival values, to check the use of damaged parts till repaired.

So largely does the psychic shock overtop the physical in most instances, the necessity being to get home, to a place of safety, that one is impelled to make the effort to do so, and likely as not walks well enough to go miles and usually suffers no ill effects whatever. Contrast with this the danger of too complete disregard of injury—delayed shock. "An idea," says Meyer Solomon, "may lead to a transient reaction in the voluntary nervous system. Whether to the voluntary or the vegetative system, the symptoms are due to something else. We may look upon the effects of shock, of emotion thus: If we view the development of the mind and nervous system from the highest functions down, we find the highest function is critical consciousness; then comes observing or passive consciousness, then ideational phenomena, then locomotor and postural phenomena, next vegetative reactions, and finally lowest are the physico-chemical reactions."

The "second wind" is a familiar example of subordination of primary fatigue phenomena. A man out of condition and in middle life cannot depend on this saving grace of a latent second wind so confidently as a youngster. Yet it is there just the same and can be depended on, provided too great speed or excessive and hurried effort be not made. Most older men have half forgotten the delightful exhilaration of "getting your second wind" then sailing forward under the magic renewal of what seemed exhausted forces. The sensations of pushing oneself to the suffocation point in middle-aged sedentary persons is far more distressing than for one who has kept up some activities. The old or middle-aged heart muscle does deteriorate, but not enough to worry about; it will respond satisfactorily if gradually and judiciously trained.

Here we have not only a gradual readjustment of all organic activities to counteract the oyster-like lethargy, the "sit by the fire" existence of one who has ceased to realize that every man is built for, and hence enjoys, motion, locomotion, even commotion.

So when taking an unusually long and rapid walk, or bicycle ride, or when rowing or paddling against a head wind or any other sudden and severe call on long disused muscles,

they cry aloud, rebel. Suddenly it seems as though a vise had closed in on the chest; that the bellows had jammed; the air supply been cut off; in short, we are about to die. The heart pounds away like a sledge hammer and induces fear. (By the way, thus do sufferers from angina pectoris feel in a paroxysm, only a hundred times worse. Nor can that be compensated; only relieved artificially.)

Now this is what happens: The muscles have used up their oxygen and produced CO_2 faster than the heart and lungs can supply the one and remove the other. Circulation and respiration immediately respond by doing all they can, but fail to keep pace with the unusual demands made on them; they are out of the habit of being so outrageously hurried. However, by easing up a little,—it is not essential to stop (often one can't, e.g., paddling a canoe in a squall, hence one must "spar for time")—till the "blessed second wind" comes. By the way, I wonder why Hiawatha in his eulogies of the different winds, notably the life-giving "south wind," omitted paying tribute to this so vital "second wind"?

The terrifying effect of air hunger (*besoin de respirer*) is not to be ignored by the middle-aged, out-of-condition, or sedentary person. Safe enough it usually is, provided the organism, though a bit worn out, be essentially sound. After an illness wherein the heart has been weakened, as in any infection, grave peril lurks; also after one or more severe strains, as business or domestic anxieties. In the experience of all physicians, catastrophes follow disregard of reasonable and necessary care after the commonest of infections—influenza. Too often the captain of industry bluntly affirms that "it is all rubbish to go to bed" or to stay away from his "important affairs" for a "mere trumpery cold." Many a valuable life has flickered out abruptly by indiscretions in effort, in anger, in attending some function when exhausted by long strains plus an attack of cold or sore throat (especially a tonsillitis).

A good test of one's "condition" is how soon hurried breathing and a thumping heart quiet down on resting. If these pumps and bellows are so greatly impeded as to cause distress, then lie flat down on the back and rest the legs on an object some fifteen or twenty inches above the heart, to encourage by gravity the back flow.

A peril which constantly threatens some persons is "fatigue anesthesia." This results from so long and habitual disregard of sensory and other fatigue phenomena as to become insensible to them. The governor is removed from the human engine, and it may readily come to grief. Thus it is repeatedly made plain how well worth while it is for any one to keep in moderate condition, and especially so as middle age approaches. So long as primary elasticity and compensatory power remain, so long as all goes smoothly, the middle-aged person "feels well" and can see no need for "monkey stunts," absurd disarrangement of his peaceful routine, all "waste of time" (it is mostly laziness); hence he contemptuously declines to "exercise."

Just as much to be deplored are such acts of folly as these: The desk worker, the man who takes no rational recreation, except late suppers and "bracers," suddenly experiences a change of heart and rushes off on a hunting trip for which his manner of life has utterly disqualified him. Thereupon he does all he is able to do and "then some" more, all in a limited space of time. He eats unaccustomed food, sacrifices creature comforts and does himself vastly more harm than good. A month of moderate preparation would have made what was a mere frantic perilous episode, one of real delight and value.

Brain workers differ from muscle workers in that they do not consume so much fuel and hence accumulate far less body poisons. Mental fatigues come more slowly. Cerebral tissues are subject to same excitatory and inhibitory influences from toxins, but readjust themselves more readily. The brain worker is, however, seldom altogether free from some exhausting muscle work,—protracted tension from cramped postures, of head, neck, back, hands and shoulders. Especially are the eyes overworked and congested. Brain workers are liable to ennui, to mental distraction, to mind wandering. The impulse is to get up and move about, to do something different, to loosen up the cramped structures. Hence the sensations of fatigue differ in kind and also in degree from muscle workers. He needs rest and change just the same, even more so if elements of worry, heavy responsibilities accompany. The depletion of nerve cells is much the most exhausting. Nothing refreshes so promptly as rational, brief motor discharges.

The key to rest is relaxation of mental over-tension, a letting go of strained attention. Where such states have become habitual, my experience is that simple primitive movements are best—partly under direction and partly spontaneous, such as gardening, carpentering, the use of any tools, artistic, scientific or industrial. Permit me to commend the punching bag here as a means for working off righteous indignation and of achieving a beneficent aggressiveness.

Alternation of action and relaxation are best. Brief siestas, even lying down quietly, will often markedly improve the character of mental work immediately afterward. So also of limiting the variety of things done.

System in work and play is equally desirable. Night workers find difficulty in securing sleep during the day—they meet too many distractions.

After sleep, a period of blessed inertia often follows, especially if it be deep. Thereupon one needs a period of "warming up"; of active motions to get on one's energy level again.

Periods of normal variations in energy occur,—diurnal variations in working capacity. The maximum is at 10 a.m.: this then declines till 4 p.m.; again a secondary partial or relative maximum at 10 p.m., after which ensues a period of lowest decline at 3 a.m., at which time most deaths from exhaustion and old age occur.

As to when the best output of product can be achieved by brain workers, there are some differences from experience. Some do their best work at night, after the distractions of the day have ceased. Systematic healthy brain workers do best in the forenoon.

Throughout the day there are to most persons periods of restful inaction forced upon us by others, such as waiting for men to keep appointments, waiting for trains, for means of transportation. These are useful only in proportion as we remain serene and can keep ourselves from emotional strain or peevishness. Dislocation of one's plans are often capable of proving agreeable, as pleasant surprises. The time one is called upon to entertain friends is too often resented.

Some men achieve double results, *e.g.*, a tennis champion of England for many years had four or five shops which he visited constantly, yet he got in a walk, or a run or a few min-

utes' leg or arm exercise and was always ready for a match.

Probably no higher physical happiness is attainable than by a judicious commingling of well-earned weariness compensated by equally judicious energy renewals.

A FURTHER NOTE ON SCARLET FEVER CARRIERS.

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IN two previous articles on scarlet fever, attention was called to demonstrable carriers, as well as to the morphological streptococcus which was shown to have a value in the confirmation of diagnosis of both case and carrier. The ability to find carriers during the first days of their recurrent sore throats makes impossible the otherwise immediate following contact with susceptibles; similarly, the finding of the carrier in connection with a reported case in the family, house or neighborhood has been the means of preventing further cases. These two factors, at basis one, in the face of the absence of the usual waves of frequency of the disease, and especially in the absence of deaths as well, are reasonable proof of the ability to control the disease. For the reason of continued confidence, further instances of the specificity of demonstration of carrier and micro-organisms are warranted. The more so that since the appearance of the previous articles mentioned, other observers have confirmed the value of cultures, but have done so to the exclusion of the specific streptococcus. Release of cases and observation of cases by means of all streptococci misses the two important points: first, the clinical manifestations of tongue and throat and secondly, the specific gram-negative chained streptococcus. The fallacy of not differentiating the varied streptococci is especially worthy of attention as to the diagnosis of contact cases, as I have recently shown.

The following case should be of interest: On March 25, 1918, A. M., age 24, was reported by the Isolation Hospital as a case of scarlet fever. Investigation of the premises from which he was taken gave a house across the street from a munition plant filled with some forty odd young men attached to the Aviation Corps, resident there three weeks, previous to which

they had been in Kelly Field. Examination of the tongues and throats of these individuals showed one, C. H. S., whom I reported to the physician in charge as definitely a carrier, and as such should be isolated. The physician two days following sent me 8 cultures. Of these, one only showed the specific streptococcus, which was later identified as from the throat

throat, although the tonsils had been excised. At first, the mother denied any immediately previous illness in the family, but later acknowledged that one week previous the girl mentioned had had a sore throat for 2 days, one of which was spent in bed, and for which the family physician had left medicine. A throat culture gave the streptococcus S. I

Scarlet Fever - 1914.

Week	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	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on April 3, 1918. On April 19 the case was released as non-infectious, whereas the carrier now seen for the first time since the report of the case, showed a bilateral anterior sero-purulent nasal discharge. It had been present for one week, resisting medical treatment. Parenthetically, it is worthy of mention that the treatment as used and described in A Study of

1918. The following day the parent appeared for a permit. A visit to the house showed the discharged patient with a characteristic tongue and a purulent nasal discharge. Culture showed the specific streptococcus, and it was not until April 8 that the nose and tongue were normal.

The appended charts of reported cases well

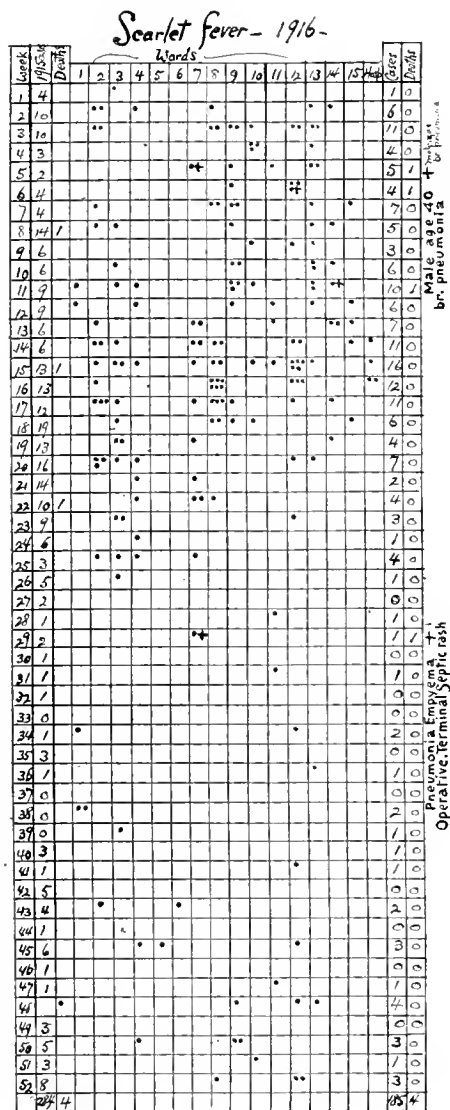


CHART 3.

Diphtheria Carriers effects the same cure. Cultures showed the streptococcus S.

How easy it has been for a convalescent carrier to spread infection by the old method of mailing a school permit any time after the hospital discharge is illustrated by the following: A. C., age 5, admitted February 5, 1918, was discharged well from the hospital March 2,

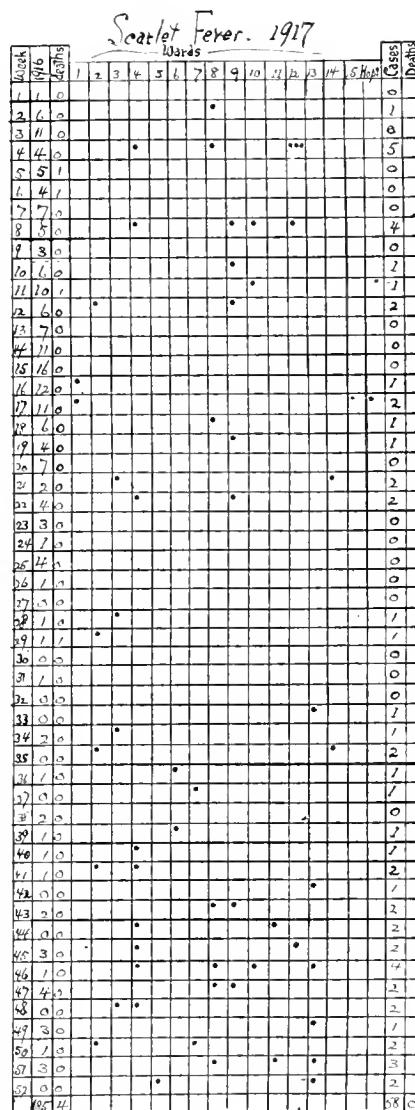


CHART 4.

illustrate how effective has been the measure of control from my demonstration of carriers as found during 1914 and 1915, and applied from 1916 on. A chart for the half year of 1918 is a counterpart to 1917, except that there have been 28 cases reported, as against 23 in 1917. The charts show cases by weeks and by city wards, save for the years previous to 1914,

when the only obtainable record was by months.

SUMMARY.

Recognition by clinical signs and by cultures of carriers is the dominant problem in the control of scarlet fever; the isolation and treatment of the carriers bears the same relation to the control of the disease as the diphtheria carrier does to the control of diphtheria.

TREATMENT OF "ESSENTIAL" FACIAL NEURALGIA BY LOCAL ALCOHOLISATION.*

By PROF. J. A. SICARD, M.D., FRANCE,

Chief of the Neurological Centre for the XV^e Region, France.

THE treatment of trifacial, the so-called "essential" neuralgia, by "local neurolysis," has stood the test of experience. The destruction of branches of the nerve by means of chemical substances, more particularly alcohol, introduced directly *in situ*, remains the only really effectual treatment, taking the place of the old physiotherapie and surgical methods.

My object has been to act directly upon the nerves by means of substances that either destroy or fix the tissues, and the method has proved highly satisfactory in respect of pain. Of such agents I have tried osmic acid, the chromates, formolised glycerine, carbolic glycerine, alcoholised mentholated glycerine, chloroform, ether, antipyrine, salicylate of soda, and salts of quinine in various proportions and doses. None appeared altogether satisfactory: either it was injurious to the neighbouring tissues, or, if innocuous, it was inoperative. I have now adopted alcohol as the chemical agent of election, varying in strength from 70° to 95°, according to the age of the subject, the tonus of the skin, the healthy state of the eyelids, conjunctivae, nasal mucosae, and so on.

Anatomy of the Trifacial Nerve. The fifth pair of cranial nerves, the trifacial, comprises three principal trunks: the ophthalmic, the superior maxillary, and the inferior maxillary. The ophthalmic subdivides into three terminal branches, the superior maxillary into six, the more important of them being the superior dental and the infraorbital; the inferior maxillary splits up into seven branches, the two

most important being the inferior dental and the lingual. These various trunks of peripheral branches find their way through foramina, canals, and notches either at the base of the skull or through the facial bones. It is these which we have to reach for the purpose of local alcoholisation.

There are three stages of neurolysis: superficial, medium, and deep.

The superficial or anterior stage is represented by the ophthalmic nerve where it emerges through the supra-orbital hole or notch, by the infra-orbital and the mental branch. The medium stage comprises Spix's spine (origin of the inferior dental canal) and the posterior palatine canal.

The deep or posterior stage is made up of the sphenoidal fissure (ophthalmic nerve), the foramen rotundum (superior maxillary nerve), and the foramen ovale (inferior maxillary nerve).

Description. Local Anaesthesia.—The operative procedure has to be modified in certain details for each foramen or canal to be injected. It is absolutely necessary to be able to introduce the needle with precision in the midst of this bony facial architecture, which is naturally very irregular, and is, moreover, subject to individual variations. The only way to achieve this familiarity is to repeat the operation as frequently as possible on the cadaver. Here are a few general precepts for the living subject. As a general rule the patient should be lying down, the head inclined in the position most favorable to the injection; maintain under gauze any hair, moustachè, or bristles that would interfere with one's freedom of action. Make use of tincture of iodine for local disinfection. It may be desirable in certain nervous subjects to induce general anaesthesia by the aid of ethyl chloride, but this leaves one a minimum of time to attain one's object, and one would have to be very sure of one's whereabouts in order to obviate the risk of a useless intervention.

In the vast majority of cases I obtain local anaesthesia with *novo* or *stovo*-cocaine, 1 per 100 (half a centigramme each of cocaine and *stovaine* per c.c.). The needle can be introduced with a minimum of pain if, after anaesthesia of the integument, it be pushed slowly into the depths of the tissues, anaesthetic in hand. In the course of some hundreds of injections I have never on any occasion wit-

* Reprinted from the *Medical Press and Circular*, July 24, 1918.

nessed anything of the nature of syncope, even after employing as much as 8 c.c. of the above solution sterilised at 100° C. for five minutes. I have abandoned the use of adrenalin, because it seemed to me to predispose the patient to the development of oedema, or even necrosis. With regard to the syringe and needles, I prefer an all-glass syringe and a platinum needle of small calibre from 3 to 6 centimeters in length.

Strength and Quality of Alcohol to be Injected.—The quantity of alcohol to be injected should not exceed 1.5 c.c. (a cubic centimetre and a half), and the strength varies from 70 to 95 per cent. For facial neuralgia involving the three branches, we can at one sitting inject the whole superficial ophthalmic and infra-orbital regions and the mental branch, and at a second sitting, three or four days later, inject the foramen rotundum and foramen ovale. If the patient has been in a hurry I have sometimes made the five injections, superficial and deep, at the same sitting. There is no fixed rule in this respect. The choice, the number, and the repetition of the injections is subject to this or that localisation or generalization of the pain, to the mildness or the severity of the consequent oedema, and so on.

The pain of the neurolysing injection can never be wholly prevented or overcome, but it can be reduced to a minimum by waiting four or five minutes after the deep injection of stovocaine before injecting the alcohol. The pain is comparatively less in the infraorbital canal and foramen rotundum; it is more severe in the foramen ovale, and still more so in the supra-orbital and mental foramina.

Accidents to be Avoided.—We must be careful not to inject the alcohol into a blood vessel, otherwise the precipitated matter of the blood would block a whole vascular region, and would expose us to the risk of inducing gangrenous necrosis of the particular area. I have seen cases in which the result has been necrosis of the palatine bone with elimination of bony sequestra. As a rule the sphacelus, limited to the cellulose-cutaneous tissues of the face, heals in the course of a few weeks, leaving a scar which is often very disfiguring. Consequently, should blood pass by the needle, it is preferable either to postpone making the injection of alcohol until another day, or only to inject the alcohol deeply with a constant to and fro movement of the needle.

I have also witnessed the production of ocular paralyses lasting from some weeks to several months, but invariably curable, after injections of the foramen rotundum, and even, curiously enough, after injection of the foramen ovale. The external oculo-motor nerve is almost invariably the one involved in either case.

To avoid ocular paralysis we must wait, after injecting the cocaine into the foramen rotundum or ovale, four or five minutes before making the alcohol injection. Should the anaesthetic fluid come into contact with the dangerous zone of the ocular nerves, there will be diplopia, in presence whereof the needle is withdrawn. Cocaine diplopia, however, is very ephemeral.

Facial paralysis, which is of rare occurrence, is due to an error of technique, a wrong direction having been given to the needle in passing through the foramen rotundum.

Facial erysipelas is of very rare occurrence, but may not be attributable to a lack of asepsis. The attack may be due merely to the awakening of streptococci lying dormant in the tissues.

Operative Sequelae.—The oedema and swelling of the tissue are immediate, and persist until the second day. The areas most liable to oedema are the infraorbital, and especially the supraorbital. The globe may be hidden by the palpebral infiltration, and we may even remark a certain degree of chemosis after the injection at one sitting of the supra and infra-orbital foramina. In spite of the tremendous swelling, however, there is no cause for anxiety, for everything clears up in a week or two. I merely direct the patient to wash the parts with tepid boiled water every two hours. It is unnecessary and even dangerous to bandage the eye. In two cases I have seen ulcerative keratitis supervene after dressings left *in situ* for 24 hours, due to the escape of a drop or two of carbolic glycerine from the foramen finding its way into the conjunctival cul-de-sac.

Conditions Indispensable to Success.—I. The intervention is limited to cases of true facial neuralgia of the so-called "essential" variety.

1. Whenever the pain in facial neuralgia persists continuously with no distinct intervals of relief it is not a case of "essential" neuralgia.

2. Cases of facial neuralgia which, not having been already treated surgically or by local

injections, are accompanied by cutaneous or mucous anaesthesia, are not cases of "essential" neuralgia.

3. When facial neuralgia, previous to any intervention, presents associated signs of stimulation or paralysis of other cranial nerves, such, for instance, as trismus, diplopia, facial paralysis, lingual hemiatrophy, etc., it is not a case of so-called "essential" facial neuralgia.

4. A case of facial neuralgia which, *ab initio*, involves the three branches of the trifacial, is not a case of "essential" facial neuralgia.

In these cases we are dealing with secondary facial neuralgia of either exo- or endocranial origin, *e.g.*, syphilis, tuberculosis, cancer, abscess, sinusitis, etc. In these the injection of alcohol, far from affording relief, may, on the contrary, aggravate matters. Nor is it of service in neuralgia following herpes zoster of the trifacial, for this is not a peripheral lesion.

II. We must make sure of reaching the nerve branches responsible for the pain. Cutaneous or mucous anaesthesia of the area innervated by the injected nerve is the only evidence we can have of a successful injection. This should supervene directly after the injection, and is accompanied by a sensation of induration and swelling, in reality non-existent. These disturbances of sensation are very varied and peculiar.

Short of permanent anaesthesia, the period of quiescence lasts from a few days to several weeks. The deeper, the more intense and total it be, the more protracted the relief. The anaesthesia lasts, as a rule, three or four months. Tactile sensation is the first to return, then the sensation of heat, and, finally, pain.

Two or three days after the injection, the patient is apt to get a little itching in the anaesthetised area of the "pins and needle" type. This surprises the patient, who finds himself scratching an insensitive area of skin.

Results.—The results are really remarkable in all cases of true "essential" facial neuralgia. Success is certain when the alcohol has really destroyed the branches or nerve trunks responsible for the pain. Out of several hundred patients thus treated I remember only two, in which, after perfect regional anaesthesia, the pain persisted. One of these patients has

since been operated upon surgically, but still without success. The more familiar we become with the method the greater is the measure of success that follows our intervention; in fact, the only possible cause of failure is the inability of the operator to reach the nerve trunk with his needle. In such case it is not the method but the operator that is at fault.

It must be admitted that in certain, happily rare, subjects the introduction of the needle into the round and oval foramina is a matter of considerable difficulty, because these orifices may be masked by osseous abnormalities, and several successive injections may be required to attain the object in view. Then, too, in elderly subjects, I have sometimes found the walls of the superior maxilla so fragile that one could not make sure of getting the needle into the infraorbital canal.

Relapse.—The cure, after a properly made injection, may be final. My statistics comprise 22 patients who remained cured for from ten to fourteen years. As a general rule, however, relapses occur in a year or eighteen months. The relapse is sometimes less severe than the primary condition, or it may bring with it the same paroxysmal phenomena. However this may be, they are amenable to the same operation, and the subsequent cure will probably be of somewhat longer duration. After the fifth or sixth injection it is rare for the cure not to be definite.

Conclusions. Every case of so-called "essential" facial neuralgia that does not rapidly yield to antineuralgic medication or the usual measures is to be treated by the method of local alcoholisation. Surgery has lost its hold on these cases; it is ineffectual, often mutilating and disfiguring; moreover, it has no longer any *raison d'être*.

Clinical Department.

ULTRA-VIOLET LIGHT A SYMPTOMATIC CURE FOR ECZEMA.

BY JOHN BRYANT, M.D., BOSTON.

ITCHING and eczema are usually considered to be somewhat synonymous. If one cannot eliminate the eczema, to eliminate the itching is at least to add greatly to the comfort of the patient. It has, therefore, seemed worth while to record the almost instantaneous relief from this distressing symptom which has been ob-

tained by the use of a quartz lamp in a case diagnosed as eczema and treated as such by competent dermatologists with various salves and lotions, but with only indifferent results.

Mr. C., aged 49, was first seen on May 14, 1917. He was referred by Dr. Donald Gregg for light treatment, with the explanation that while visiting at the Channing Sanitarium Mr. C. had out of curiosity exposed himself to the light from a quartz lamp, with the somewhat unexpected result that he got almost immediate relief from the intense itching which at the time distressed him. He came to me hoping that his previous experience could be repeated. He was not disappointed. Blue light does not prevent a recurrence. It has, however, done the next best thing. It has given almost instantaneous and absolute relief from the itching when it recurred. In addition, the attacks have seemed less frequent and less severe, but doubtless this may have reflected an improvement which has taken place in the general condition of the patient. Except on the penis, where there had been some edema, the skin lesion itself was confined to an almost invisible redness, wholly disproportionate to the violence of the accompanying itching. This itching frequently started at one or two o'clock in the morning, prevented sleep, and continued without respite until exposure to the lamp; it has often been rather dramatic to observe the complete relief obtained by a few minutes' exposure to the light.

At first, areas on the eyelids, the sides of the chin, the palms of the hands, the penis, and the legs were affected. Later, the trouble was more confined to the chin and the penis, or the chin alone, but the results of the exposures have been always the same: there has been immediate cessation of the itching.

The exposures have been at a distance of 20 to 25 cm., and the duration has been from five to twenty minutes, according to the location and tenderness of the skin area involved. There is nothing in the literature on the quartz lamp which can be taken as a contraindication to this form of treatment of eczema.

SUMMARY.

Ultra-violet light, while not preventing recurrence, has proved an active therapeutic agent and an almost instantaneous specific for the intolerable itching which has been a most distressing symptom in a case of eczema.

Society Report.

SOME PROBLEMS OF NUTRITION IN THE ARMY.*

BY MAJOR JOHN R. MURLIN, SANITARY CORPS, NATIONAL ARMY.

Chief of the Division of Food and Nutrition of the Surgeon-General's Office.

FOOD has been defined as a well-tasting mixture of materials, which, when taken into the stomach, is capable of maintaining the body in any desired state. The choice of these mixtures in the form of menus, their preparation, their digestion and fate in the body, is the science of nutrition. If we had a complete knowledge of every food substance and the transformation it undergoes in the body, just what purpose it fulfills, and how it fulfills this purpose, and what becomes of it afterwards, we should have a *completed* science of nutrition. A person is satisfactorily nourished when he is maintained in a physical and mental status.

In our Army the first requisite was to create a body of well-muscled men. If you could see the great bodies of these men as I have seen them you would agree that this aim is being rapidly achieved. In the muscle-up period a plentiful amount of muscle-forming materials, the best of which is beef, is required. The first legislation fixing the components of the Army ration is dated November 4, 1775, when the Continental Congress fixed one pound of beef and one pound of bread as the allowance for each man per day, "three pints of beans or peas at a price not to exceed \$1.00 per bushel, one pint of milk, half a pound of rice or one pound of Indian meal per week, one quart of spruce beer or cider for each man, or nine gallons of molasses for each company of men per week." The ration also included candles and soap. The ration fixed July 16, 1798, is in some respects the same as we have today. In 1818 Calhoun, who was Secretary of War, recommended that the liquor components of the ration be discontinued. This was concurred in by Surgeon-General Lovell. Congress, however, failed to act, and the liquor continued as a component of the ration until 1838. In 1817 Andrew Jackson, who was Commander of the Army, became so impatient with the contractor system that he organized a commissary

* Abstract of paper by Major Murlin, read at the April meeting of the College of Physicians of Philadelphia, Wednesday, April 3, 1918.

department for his own army entirely without authority from Congress. This resulted in legislation dated April 11, 1818, which laid the foundation of our modern Subsistence Department. In 1832 coffee was for the first time made a part of the ration. The ration which prevailed throughout the Civil War, fixed by legislation dated August 30, 1861, was as follows:

beef, 20 ounces -
bread or flour, 22 ounces
potatoes, 16 ounces three times a week
beans, rice or hominy "in proportion with above."

Then for each company of men, or 100 rations:

10 lbs. coffee
15 lbs. sugar
4 qts. vinegar
4 lbs. soap
1½ lbs. candles

Besides the "garrison ration," fixed by legislation dated January 11, 1911, the American Army has the reserve ration, the travel ration, and an emergency ration. The last named has been well defined "a substitute for nothing." The Division of Food and Nutrition, in its effort to find a satisfactory emergency ration, has not been entirely successful, but believes that the most satisfactory form of concentrated ration is hard bread, supplemented by potted beef or ham, dried beef or sardines, and when there is opportunity for the use of a portable cooker, three ounces of sliced bacon should be added. The ration forming the basis of feeding in training camps does not prescribe what the men shall eat. It is merely used as the basis of money allowance for the ration. A long list of substitutive articles is carried by the Quartermaster Department, but the soldiers must not spend more than the amount of money represented by the cost of garrison ration, with certain definite percentages of substitutions, at the time and place where they are stationed. If the men do not like what the Quartermaster has in store they are at liberty to take money from the quartermaster in lieu of rations and buy materials outside. This is at the discretion of the commanding general. On the whole, it must be said that the mess system in vogue in the American Army works well. The work of the Division of Food and Nutrition is not to supply food for the Army. Our duties are largely of an advisory or inspectorial nature. We are authorized to in-

spect all the food of a camp, with especial reference to its nutritive value; to seek to improve the mess conditions; to determine the actual consumption of food and amount of waste, and to report these facts to the division commander. The Division now contains 65 officers and some 50 enlisted men. A Nutritional Survey party, consisting of four officers and several enlisted men, spends from two to four weeks in a camp studying food conditions and making recommendations, and then returns to observe improvements. One contingent has gone abroad to report to General Pershing for similar service in France. Already the Food Division has been able to improve food conditions, and has already gathered a considerable body of information regarding the actual consumption of food and the amount of waste. Recent reports from Camp Funston and Camp Sevier show that waste has been reduced to a practically negligible point. Company commanders at their discretion can compel a man to eat at the next meal anything he has left on his plate. We find that the most economical way of serving men in large numbers is by the squad system, in which the squad leader shall have authority over the serving of his men. Our work has given the first instance in warfare in which the actual amount of food consumed is estimated directly in the camp and field. This is made possible by our system of feeding men by companies. Meat is the most economical repair material for muscle and other active tissues. The British Army allows 1 lb. of meat per man per day; the French Army, ¾ lb.; the Italian, ½ lb. Our allowance is 1¼ lb., but the actual consumption in the camps in this country does not exceed ¾ lb. The question may fairly be asked whether the Government would not be well advised to reduce the quota of meat and replace the amount thus saved with sweets, provided as a part of the ration. The dehydration of vegetables is a question of great interest to the Army, and the Quartermaster Department has placed orders for dehydrated potatoes, onions, and carrots for the use of General Pershing's army. By simply soaking in water and boiling in the same water these vegetables are brought back to the condition of fresh vegetables and often cannot be distinguished from them. The saving of time in the company kitchen is also a highly important element. The Division of Food and Nutrition has already found a meth-

od of making meat powder by dehydration at low temperature and a high vacuum. Imagine the difference in the cost of transportation, quite aside from the cost of refrigeration of these food products! At the request of the American Red Cross, the Food Division prepared an American prisoners' ration which could be shipped to the Red Cross Headquarters at Berne, Switzerland, and packed in parcels not to exceed 11 lbs. This was sent three times every two weeks. The list was somewhat as follows: Rice, sugar, dried beef, pork and beans, peanut butter, soda crackers, evaporated milk, milk chocolate, desiccated strawberry, jam, nut margarine and dried figs. At the request of the Red Cross we also prepared a ration to be known as the invalid ration. The following ration has been approved by the President and adopted: Unpolished rice, yellow cornmeal, sugar, potted chicken, Julienne or compressed soup tablets, dried milk powder or Horlick's malted milk, beef extract, minute tapioca or other form of prepared pudding, crackers, tea, milk chocolate, marmalade, fresh fruit or fruit juice. These articles, however, are regarded as only supplementary to those of the regular ration. The status of the science of nutrition in America is equal to its status in the land of our enemies at the beginning of the war, and our Government has been foremost in the support of scientific investigations along these lines.

SOME OF MY OBSERVATIONS IN FRANCE.*

BY MAJOR W. A. GARRETT,

Assistant General Manager, Remington Arms Company.

OUR Commission, sent to France by the War Department to study the French railroads and report on their needs to take care of the American expeditionary force to be sent over under General Pershing, consisted of William Barelay Parsons of New York, the engineer who built the subway, chairman, to give special attention to rivers and harbors; William J. Wilgus, formerly vice-president of the New York Central, to study maintenance of ways and bridges; Mr. F. de St. Phalle, of the Baldwin Locomotive Works, was to study loco-

tives and cars, and my study was transportation. We were able to report in part to the Department that the railroads of France were in as good average condition as the average American railroads today. We had the word of French officers that the moment the railroads go down, that moment a country loses a war. The British have a problem similar to our own, that is, to handle men and material from the west coast of France to the fighting line. In England, in the effort to economize in every possible way, little notice cards are put on your table, "Don't waste bread; if half a slice is enough, please eat the whole slice. Every one must save bread; it is a national duty. Will you help?" The difference between England and the United States is this: The situation is serious and England knows that to be true; the United States does not yet know that to be true.' We shall all know it soon. We reached Folkestone 48 hours after a German aeroplane had killed 38 people, principally women and children. France has seen her own people killed, male and female enslaved, females worse than enslaved, their houses looted and destroyed, their streams and wells polluted, and the very ground from which they must get their living shot up to almost utter uselessness. War is just what Sherman said it was—plus. The French people are not so much impressed with what the German Army has done as what it did not do, because on paper the Germans had the best gambling chance to win that any country could have after forty years of preparation. We were told in France that the Germans were so sure of getting into Paris that when the battle of the Marne was fought they had left their big guns back in Belgium. Joffre's handling of the railroads was such that the Germans could not get down the larger guns if they had tried. The Pressed Steel Car Company here in America has orders to build a certain number of steel freight cars for the French Government. They are built in this country, knocked down, and sent over seas, and erected in France by the German prisoners. They were paying the German prisoners four francs for each day's work, with a possible one franc extra as a bonus provided they did more than their day's work. We were told that 90% of the German prisoners were making the one franc extra. On the British fighting line we saw that wonderful aggregation of British fighters from England, Ireland,

* Abstract of paper by Major W. A. Garrett, Assistant General Manager, Remington Arms Company, at patriotic rally under the auspices of the Philadelphia County Medical Society, April 26, 1918.

Scotland, Wales, Canada, Australia, West Indies, New Zealand. One sees hundreds of miles of shot-up trenches and thousands of miles of barbed wire fences and entanglements, and the wonderful hospitals in charge of those splendid men and true godly women. And then one sees the graveyards, hundreds upon hundreds and thousands upon thousands of graves everywhere; white crosses for the Allies, black crosses marking the Germans. From German prisoners were taken postcards reading: "You will take no prisoners. Show no mercy. Show no quarter. Make yourself as terrible as the Hun who said, 'Where your footsteps fall let no grass grow for a thousand years.'" The German soldiers are trying hard to carry out the order, and are doing the job well. This is what General Pershing has put out: "Your first duty is to be soldiers; your second, and scarcely less important, to help those who are poor and weak. You will be courteous to all women. Abstain from wine and liquor. Be kind to little children. You will fear God and honor your country and win the war to liberty. God bless you and keep you." Our commission did not witness any German atrocities; that was not our study. But there are commissions in both Belgium and France who are taking the historical record, so that when the time comes for the long-table conference, with Germany on one side and the Allies on the other, there will be an accounting from which there can be absolutely no escape for the Germans. The British are protecting in the northeastern part of France approximately 125 miles of fighting front from Belgium into France, and the average distance between the British channel and the British fighting line is approximately fifty miles. Where we, the American troops, fight, it is over 400 miles from the coast to the fighting line. The British have 750 British locomotives in France, 49,500 British freight cars in France, 98,620-odd transportation men for a fifty-mile haul, and we have a 400-mile haul. The British also have on this fifty-mile fighting front over 200,000 laborers of twelve nationalities to unload ships, work upon the railroads, highways, canals, supply stations, and railway yards. In other words, 200,000 laborers and 100,000 transportation men for a fifty-mile performance, and we have a 400-mile performance. The American people have absolutely no thought of what they are up against. When the second

Liberty Loan came out less than 10% of our people thought sufficient of the war to loan the Government money. We shall know, however, that we are at war when we see cripples, cripples—everywhere; when our hospitals are full to overflowing, and when your boys don't come home. General Pétain told us about Verdun. He was at Verdun when the Crown Prince made the attack—one of the greatest attacks the world has ever known, because Emperor William wanted to have the Crown Prince do something worth while. General Pétain decided to hold Verdun, and he issued the famous order, "They shall not pass.—Pétain," which is still painted on the fort at Verdun. General Pétain told us that as soon as it was decided to hold Verdun they decided to do three things: Build a thirty-six mile double-track railway from Fleury to Douney, and it took 60,000 men three months to build it. They then decided to make a harrow line of three feet gauge which they had into a double track. The call for engines and cars for this work was so urgent that passengers and freight were left standing out in the country. The third thing which they did was to make a pike into a double width, that automobiles might pass. Automobiles going to Verdun with men and materials had the right of way. We looked across the valley where the Crown Prince of Germany lost over 500,000 men trying to take Verdun. In each German regiment they have what they call a "hellish squad," the duty of which is to poison wells and to connect with electric batteries everything movable. Every soldier in Europe today rides in box cars and on flat cars, and if there is any complaint about our passenger service in this country, keep that fact in mind.

The food situation in certain parts of France is very critical. Few people in this country understand what that splendid man Hoover is trying to work out. He is not trying to save you the cost of living, but to prevent starvation in Europe and here. The French people are very tired. They have fought the war for over three years. They have lost 1,300,000 men killed, and you cannot tell how many men crippled, crippled, crippled! All that France can give our people today is air, water, and standing timber. Claveille said: "Don't send any bridge timber, dock timber, or railroad ties. Send your foresters over to cut our

standing timber." When we left Paris coal was selling for \$45 per ton, and you could not get the full half ton that Dr. Garfield gave you last year.

It had never been my good fortune to meet General Pershing until I was in France. He endeared himself to the French people because he went to the tomb of Lafayette and said, "Lafayette, we are here!" Four words, and then the French people knew that the American commander was a man of action and not of words. Until we reached Péronne, today in the hands of the British, I was of the opinion that the destruction of trees was a military necessity. There we saw on each side of the boulevard trees fifty or sixty years of age. The Germans had deliberately cut each three-quarters through with an axe; every tree standing and every tree dead.

Over 46,000 women are working on the French railroads. In England the "British Women's Army Auxiliary Corps" are getting approximately 50,000 women to be sent to France to act as clerks, cooks, and chauffeurs. The American women—God bless them!—they will do the right thing when they know the job before them, and the job is there. My father was a birthright Quaker, but having seen France, I am absolutely certain that we should have in this country universal military training.

Shall we win the war? Yes! Just as sure as the sun rises in the east, *because we must!* How long will the war last? Until we win. Our Government, however, has very wisely mapped out a program for a long-time war. But consider the bigness of the war. Money by the billions, men by the millions, ships, aeroplanes, and cars by the thousands. Our war program is the biggest transportation program that the world has ever known. My message to those who stay at home is: Economize. Don't waste. Be an American first, and all the time. Let your criticism of our war program be *constructive* and not *destructive*; stand behind the Government and ask yourself each day, "What am I doing to help win this war?" And for those good men and true women who go abroad to win our war. Good luck and God bless them!

HOW AMERICA IS HELPING FRANCE WITH HER TUBERCULOSIS PROBLEM.*

BY JAMES ALEXANDER MILLER, A.M., M.D.,

Associate Director of the Commission for the Prevention of Tuberculosis in France.

THE Commission for the Prevention of Tuberculosis in France was sent in July, 1917, under the auspices of the International Health Board of the Rockefeller Foundation, with Dr. Livingston Farrand, formerly Executive Secretary of the National Association for the Prevention of Tuberculosis, as its Director. In February, 1917, Dr. Herman M. Biggs was requested by the International Health Board to make a first-hand study of the situation and the sending of the permanent Commission was a direct result of Dr. Biggs' report and recommendation. The results of the studies made by the Commission thus far tend to corroborate Dr. Biggs' estimate of nearly 500,000 cases of tuberculosis in France, though the classification is somewhat modified. Dr. Biggs' classification is as follows:

Discharged from Army	150,000
Still remaining in the Army	45,000
Prisoners of war in Germany	45,000
Civilian refugees and repatriés	85,000
Among the remaining civilian population ...	110,000
Tuberculosis listed under false diagnoses, such as bronchitis, etc.	30,000
Total	440,000

It is the opinion of several of the best of the French clinicians that a very large percentage of the cases diagnosed as tuberculosis in the Army did not have this disease, at least, in active form. That predisposed cases do well rather than otherwise under Army régime was the expression of opinion of French physicians in military service. Very few tuberculous prisoners of war in Germany have been returned to France. That a goodly number of cases of tuberculosis are covered under such terms as chronic bronchitis is most probable. The prejudice in France against public acknowledgment of tuberculosis in a family is even greater than in this country. In Paris, where the mortality is highest, more than 52% of the deaths reported from tuberculosis occur in hospitals where the greatest accuracy in diagnosis and record is to be expected. Regarding tuberculosis among the remaining civilian population, an analysis shows that, while the

* Abstract of paper read before the College of Physicians of Philadelphia, May 1, 1918.

death rate from tuberculosis in France is high, it has been no higher during the war than previously; also that the increase in the death rate above the average in France is due almost exclusively to the very high figures which obtain in large cities. Tuberculosis remains, as before the war, a disease especially of the civilian poor in large cities. The food problem has by no means reached the point of actual want in France, excepting in the exceptional cases, although the question is a difficult one. Alcoholism plays a large part, and all French sanitarians hope for some control of the sale of distilled liquors as a result of the war. Second in importance to the tuberculosis problem in France is that of infant mortality and of depopulation. We have found it desirable to link up the two campaigns through coöperation with the American Red Cross. This has been done by carrying on the publicity propaganda as one united effort, and by conducting clinics for children in all tuberculosis dispensaries which we have established. The birth rate in France is well below the death rate. The infant mortality rate, however, is distinctly below that of Germany. Our Commission entered into a working agreement with the American Red Cross which has exhibited as splendid an example of coöperation as could possibly exist between two similar bodies. Our working basis was that the general outline of the tuberculosis campaign and the policies involved should be directed by the Commission, which would have direct charge of the establishing of dispensaries, the training of nurses and the educational propaganda—the Red Cross assuming the institutional care, home relief, and housing. There was, as a matter of fact, interchange of work and personnel, with complete harmony. We assumed the entire responsibility for community tuberculosis work in an *arrondissement* of about 250,000 inhabitants. Three tuberculosis dispensaries have been established here and a fourth is under way. The visiting nurses are doing tuberculosis work and infant welfare work simultaneously. The housing problem in France is one of the most difficult to solve. The overcrowding and general lack of hygiene in the tenement districts exceeds almost anything with which we are familiar in our large cities. Mr. Homer Folks of the Red Cross contracted with the owners of half-finished apartment buildings for the Red Cross to finish the buildings and to apply the

necessary expense toward the rental upon a three-year basis. This has made available space for several thousand people, some of which has been used for our tuberculous families. In order to make our demonstration more complete, we developed a rural section of France along the lines followed in the *arrondissement* mentioned. Hospital supervision has been provided and plans are under way for the erection of a sanatorium. The same methods have been employed as in Paris, including the establishment of children's dispensaries, training of visiting nurses, and provision for home relief. In addition to these two intensive organizations we have coöperated with existing French dispensaries. In our various dispensaries we have over 1500 new patients in attendance and 1350 families were under supervision April 1, 1918. Until a few years ago the nursing of the sick in France was entirely in the hands of the nuns, but since the separation of Church and State, schools for nurses have been developed. We have established a scheme of coöperation with three of the best schools in Paris and a fourth in Lyons. While the theoretical training given to nurses and in the practical work in institutions was splendid, there appeared to be a lack in the training for social work. We have achieved a common basis for the curriculum and secured courses in the principles of social work. As all physicians of military age in France have been mobilized, only the elderly men and women physicians remain. It has been our policy to co-operate with them in every possible way. One important result has been a most interesting and valuable interchange of knowledge and methods between the physicians of France and America. Members of the Faculty of Medicine in Paris and in Lyons have suggested that we offer a course in diagnosis to the students of their medical schools. This undoubtedly will be done later. Probably the most interesting and successful feature of our Commission has been the educational propaganda developed under the direction of Professor S. M. Gumm, in coöperation with Mr. Pratt of the Children's Bureau of the American Red Cross. The plan consists in having several educational automobile units, comprising moving picture machines, a traveling exhibit, a mass of printed literature and posters and lectures on tuberculosis and infant welfare, all heralded in advance and kept before the public by a well-

organized press campaign. Three of these units have begun work and twelve are planned. The success achieved is already astonishingly great, and the enthusiasm has not only done much to extend the health propaganda, but has aroused a tremendous admiration for America among the French people. No more stirring experience can be had than watching the effect of this American effort among the French people. The very satisfactory beginnings of the campaigns in France against tuberculosis and infant mortality is due mainly to the cordial spirit of coöperation manifested by the French themselves, who need the encouragement and assistance that America has brought to them, only to tide them over this present period of terrible strain and stress. That America has been able to have a part in the beginning of this great movement will do much to strengthen the ties of affection binding these two great republics, and to those of us who have been privileged to share in the work, it will always remain one of the great and deep experiences of our lives.

Book Reviews.

Clinical Studies in the Relationship of Insanity to Crime. By PAUL E. BOWERS, M.D. 8vo. pp. 104. Michigan City, Indiana, Alexander Publishing Company.

The author, a physician in charge of the Indiana Hospital for Insane Criminals, has had opportunities for much observation of insane criminals, and it is encouraging to see such efforts at serious study made in this field.

After some general, rather brief discussion of such points as general causes of crime, and on criminal anthropology, the writer first gives a series of cases in which criminal acts were committed by epileptics, paranoiacs, sufferers from dementia precox, general paresis, manic-depressive insanity, hysterical and puerperal insanity, senile psychoses, cerebral syphilis, drug psychoses, traumatic psychoses, feeble-minded, psychopathic personalities and cases of constitutional immorality.

The cases given in this book are very briefly reported, and so the impression given is that it is rather superficial in its treatment of this large subject, though this is probably due to the author's desire to keep it moderate in size.

Three Contributions to the Theory of Sex. By PROF. DR. SIGMUND FREUD, LL.D. Authorized Translation by A. A. BRILL, Ph.B., M.D. Nervous and Mental Disease Monograph Series No. 7. 8vo. pp. 117. New York: Nervous and Mental Disease Publishing Company.

In this small volume the author expounds some of the bearings of his views of the sexual impulses in three directions, taking up first the sexual aberrations or perversions, then infantile sexuality, and lastly the transformation of puberty. While acceptance of Freud's theories as a whole is far from being general, no one with understanding and knowledge of psychoneuroses and abnormal psychology can deny the widespread ramifications of the sexual instinct in many directions where often least suspected, and while certain examples of sexuality in the infant, such as that from nursing and thumb-sucking, seem to be taken as positive proofs by Freud and his school, in spite of doubt as to their universal validity, the explanation of sexual perversions as developed from permanent repression of the sexual instinct during development from the infantile forms is constantly suggestive, and probably applies to some of the cases.

Again we must thank the editors of this series for making accessible to English readers books of importance in the field of nervous and mental diseases which in the original languages are little likely to be as widely read as they deserve.

Nervous Children. By BEVERLEY R. TUCKER, M.D. 12mo. pp. 147. Boston: Richard G. Badger.

This book consists of brief talks, in simple language, on defective children, such as the paralyzed and imbeciles, as well as other forms of less severe disturbances of the nervous control. The treatment of the subjects is chiefly upon the lines of anatomy and physiology, but throughout the book are many useful suggestions and points of view which will be found to be of practical use, especially to parents and teachers. It forms a useful introduction to the study of this subject, which has called forth many notable books and articles in comparatively recent years.

Lord Lister. By SIR RICKMAN JOHN GODLEE, Bt. London: MacMillan and Company, Limited. 1917.

This biography, written by Lord Lister's nephew, gives a record of what Lister has done for Science and Surgery. It is written by one who, because of his close personal contact with him for many years, is able to depict Lister the man as well as Lister the public

benefactor. Many of Lister's letters to his father, brother, and friends are interwoven with the story of his discoveries.

Joseph Lister was born on April 5, 1827, at Upton, in Essex. He spent his youth in a Quaker atmosphere. He attended two private schools: the first at Hitchin, the second at Tottenham. At an early age, he began to macerate bones, dissect fish and small animals, and to articulate their skeletons. At the age of seventeen, he went to University College, London, where he began to study surgery soon after the discovery of anesthetics. His first step in a professional career was taken when he began to assist Mr. Syme, of Edinburgh, one of the most successful surgeons of the day, in his private operations.

Lister next obtained the appointment of Assistant Surgeon at the Infirmary. During this period, he delivered lectures on "Early Stages of Inflammation," a subject in which he had made original investigations. In 1856, he married, and, after a wedding journey, settled in Edinburgh. In the next few years, Lister pursued his investigations on coagulation of the blood, and delivered a paper on "Spontaneous Gangrene." His private practice began to increase. In 1858, he received an appointment to the Professorship of Surgery at Glasgow, and was also appointed Surgeon to the Royal Infirmary. At this time, he began to write articles on amputation and anesthetics. The methods of wound treatment in the middle of the 19th century were completely revolutionized by Lister. He experimented with antiseptic drugs and made investigations in fermentation and putrefaction. His antiseptic system was a campaign against wound infection: heat, filtration, and chemical antiseptics were the three methods for ridding the air of its germs. Two facts which Lister discovered had an important bearing upon the development of the antiseptic treatment: 1. That an antiseptic clot which had once contained carbolic acid could, if undisturbed, be organized into living tissue by the growth into its substance of cells and vessels from surrounding parts; 2. that a piece of bone that has died may be absorbed in an aseptic wound by the granulations that lie in contact with it.

In 1886, he became candidate for a professorship at University College, London, but he was defeated. It was a great disappointment to him, and he settled down at Glasgow. His antiseptic principle had been clearly and publicly explained and many visitors came to see him. His students, however, exercised more important influence in spreading his doctrines than did the numerous visitors who came to Glasgow. Lister recognized that antiseptics when they damaged tissues were evils, so he tried to do away with them. He dressed amputations by excluding germs mechanically; a protective—block tin, tin foil, or gold leaf—was used to keep the antiseptic from irritating the

wound. The most successful protective was oiled silk, covered with copal varnish. Carbolyzed catgut was used freely in wounds with complete success.

Lister was appointed to the chair of clinical surgery in Edinburgh in 1869, and was recognized as the leading Scottish surgeon. He delivered two clinical lectures a week, and made a series of investigations in the history of fungi and bacteria and their relations to fermentative processes. At this time, he made two important modifications of the antiseptic treatment: 1. He attempted to render air innocuous by means of antiseptic spray. 2. He substituted an absorbent gauze dressing for the non-absorbing iac plaister. The spray proved unsuccessful and was abandoned.

In regard to the reception of Lister's teaching at home: his new principle of antiseptic treatment was at first sharply criticized, but Lister continued to place his views before the profession in addresses and papers dealing with the effects of the antiseptic system. Lister's teaching made little headway in London until younger surgeons who cared to test its truth reached a sufficient degree of seniority to have charge of wards. On the whole, as time went on, there was a tendency for apathy to pass into opposition. Conviction spread more among the rising generation than in that of successful practice by their elders. Progress was more marked in provincial towns, where younger men were more frequently advanced to the charge of wards. As to the reception of Lister's teaching abroad, the situation was slightly more favorable. German education was more scientific, and Lister's teaching appealed more to German than to English minds. —German surgeons discussed the principle involved in a rational way, even if they disagreed with it. Early enthusiasm, however, soon cooled, because Germans could not succeed in obtaining Lister's results. In continental schools, also, his treatment was tried and given up. In France, the essence of Lister's teaching was long in obtaining a secure foothold. In Italy, all surgical reform was slow, and the adoption of antiseptics was belated. In America, progress was even more slow. During his Edinburgh professorship, Lister's literary output was large, and dealt especially with antiseptics and fermentation. Lister's influence on military surgery has been great, but it has failed to accomplish all that was hoped. Mortality after amputation has diminished, and his teaching has helped in the intelligent treatment of infected wounds. At this time, Lister purchased a house at Lyme Regis. During 1873-4, he was occupied in bacteriological work and clinical improvements. Letters to his brother show how time was passed. The most important events of 1875-6 were a continental journey and his appointment to the General Medical Council; the former brought him into personal contact with the chief German sur-

geons, and the latter made him intimately acquainted with many leaders of the medical profession in London. Two demonstrations were given at a meeting of the British Medical Association; Lister performed several operations and showed the results of antiseptic treatment.

Lister made many experiments on animals; he felt that they were justifiable and necessary for the sake of eliciting scientific truth. There was much opposition, however, to vivisection; the Royal Commission inquired into the subject in 1875 and Lister gave evidence before it. Lister was appointed to the General Medical Council and was recognized as the most prominent medical man in Scotland. In September, 1876, Lister attended the International Congress in Philadelphia and was made president of the Surgical Section. In 1877, King's College created an additional chair of clinical surgery for him, and Lister left for London. His nine years at Edinburgh had been of priceless value to him; he had had good opportunities for pathological and clinical research and for spreading his influence among foreigners. This was probably the most brilliant and the happiest period of his career.

Lister moved to London and his private practice became considerable. He took to London with him four men whom he had trained—otherwise it would have been impossible for him to plant his new system in the uncongenial soil which was the best that King's College Hospital was able to offer him. Reformation of nursing was necessary, and Lister found a lack of sympathy and absence of enthusiasm among the sisters. For his introductory oration at King's, he gave an address on "The Nature of Fermentation," which is the foundation stone of the antiseptic system. The lecture was a brilliant and hopeful beginning of his campaign. The situation was chilling and depressing so far as teaching was concerned, for there was little enthusiasm. His relation with his colleagues, however, was cordial, and London surgeons began to become appeased.

As time went on, Lister received many honors. In 1878 he addressed the Harveian Society. He was gazetted Juror of the Class 14 (Medicine, Hygiene and Public Relief) at the great universal exhibition at Paris. He attended the Sixth International Medical Congress in Amsterdam in 1879, and made an address before the Pathological Section of the British Medical Association at Cambridge. The Seventh International Medical Congress met, in 1881, in London, and Lister opened a debate "On the relations of minute organisms to unhealthy processes arising in wounds and to inflammation in general."

Surgeons at this time began to arrange themselves on one side or the other of antiseptic or aseptic surgery. Prejudice against chemical antiseptics increased, and many turned away

from Lister's teaching and proclaimed themselves asepticists. Lister frankly admitted that a certain number of the beliefs upon which his system was founded had had to be modified or even discarded. The two systems are really not opposed to one another; aseptic surgery is only a modification of antiseptic surgery.

Lister's life in London was honored by many distinctions. For fifteen years he occupied the chair of clinical surgery at King's College. In 1880 he received the LL.D. Cantab. and the D.C.L. Oxon. Foreign distinctions in abundance were bestowed upon him. In 1883 he was made a baronet. His life in London was less strenuous than in Edinburgh, but there was no relaxation of his experimental work, and Lister was gradually accepted by London. His later life held longer and more leisurely holidays, spent with Lady Lister. In 1889 an International Congress of Hygiene was held in London. Lister was President of the Section of Bacteriology, and gave an address summarizing the bacteriological work done during the preceding ten years. In 1892 he retired from the Professorship at King's College, at the age of sixty-five years; but he continued in charge of wards for another year. The death of Lady Lister, who had been his intimate daily companion and intelligent helper, left him lonely and depressed. In 1893 he retired from King's College Hospital. His appointment as Foreign Secretary of the Royal Society opened to him new fields of interest. He became President in 1895, and his duties forced him to take more prominent part in public ceremonies. In 1894 he gave an address to the students of Glasgow University. His theme was the simplification of the antiseptic treatment.

In 1896 Lister was made President of the British Association. In 1897 he was elevated to the peerage and became a member of the House of Lords. In 1897 the British Association and the British Medical Association held their annual meetings in Canada, and Lister was prominent in both. In 1898 he received the freedom of Edinburgh. In 1901 he took an important part in the Tuberculosis Congress held in London. The same year he made a voyage to South Africa. He was made member of the Order of Merit and a member of the Privy Council. He received the Copley medal of the Royal Society. Nineteen hundred and four to nineteen hundred and seven were uneventful years, during which he studied English and foreign scientific literature and collected all his writings. In 1909 they appeared as "Collected Papers," divided into five parts: (1) Physiology; (2) Pathology and Bacteriology; (3) The Antiseptic System; (4) Surgery; (5) Addresses. In 1907 Lister was presented with the freedom of the City of London and the freedom of Glasgow. The years 1908-1912 were the gloomy twilight after a brilliant career. Lister died on February 10, 1912. A service was held in his honor in Westminster Abbey and he was buried beside his wife in West Hampstead Cemetery.

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AUDITORY AND KINETIC THEORIES OF SEASICKNESS.

Most of the attempts to elucidate the etiology of seasickness are purely theoretical, the reason being that there is an inherent vagueness in the nature of the disorder. Moreover there is a psychological factor at work, which adds complexity to the problem, for certainly the impulse to seasickness has been faith or fear, that is, self-confidence or a morbid fear of the sea and the circumstances of ocean travel. It may therefore be admitted that in a case of seasickness physical and mental elements are as closely connected in the causation of the symptoms as the presupposed union of soul and body in the nature of man would lead us to expect. In recent investigations, a third element has been added which may be called the dynamics of seasickness.

As soon as this factor was understood, the question arose whether seasickness is, properly

speaking, a disease. Opinions differ, but it is to be noted that physicians of ocean liners, who have had much actual experience, do not take the view of office specialists. Thus Isaac Jones in a recent work on "Equilibrium and Vertigo" (1918) writes: "We are dealing with a sickness which is not a sickness in the true sense of the word. It is a normal reaction in a normal mechanism." According to this view, seasickness is caused by "varied movements of the endolymph and the inability of the brain either to interpret or to disregard them." Technically, and as regards theory, this state briefly represents the physiological school. On the other hand, the view of most ship surgeons naval and mercantile, is summed by Barnett ("Seasickness," London, 1907), that it is a disease in the strict sense of the word, and often a very "serious" one.

Notwithstanding its limitations, the auditory theory of seasickness has served a useful purpose in giving a clear idea of the part played by the semicircular canals in one of its main symptoms—vertigo. As regards this symptom, physicians agree that it is auditory, but they are by no means equally convinced that it is the same thing as vertigo produced by the revolving chair or by other mechanical methods of stimulating the internal ear. In order to appreciate the diverse views of observers of the phenomena, it is desirable to state the case for the auditory theory and the facts of recent study. According to Lewis Fisher it is "generally accepted that the phenomena resultant from being turned in a chair are the result of stimulation of the hair cells in the semicircular canals brought about by the movement of lymph within those canals. At the outset, therefore, it is fair to assume that those vague symptoms known as *mal de mer* are produced in the same way. Furthermore, if this assumption be correct, any agency which induces movement to the lymph within the semicircular canals should produce the same symptoms."

It would seem to follow from this proposition that aviation, in which there are violent movements of the endolymph, must be peculiarly marked by a tendency to seasickness. Yet it seems to be acknowledged that "air sickness" is not seasickness, and many writers, of late, have stated that pilots seldom suffer from this disorder. At the same time it is not difficult to conceive that any motion which more or less

violently throws the endolymph against its containing walls, richly supplied with delicate nerve endings in direct communication with brain and stomach, will produce symptoms referable first to the equilibrium, then to the cerebrum, and finally to the stomach. That this is what occurs in seasickness is not denied, but it is quite a different proposition to assert that there are no other factors at work.

There must, in fact, be other causes of seasickness. Thus, it is pointed out that deaf mutes, in whom the semicircular canals are absent or defective, should be immune, on this theory, from seasickness. Many physicians believe, on what has proved to be insufficient evidence, that deaf mutes escape the malady through their anatomical departure from the normal. Actual experience, however, does not bear out this view. In an exhaustive analysis of prevailing theories, Trocello (*Annali di medicina navale*, 1916, Vol. xxii, p. 473) says: "Now, if seasickness were of vestibular origin, deaf mutes in most cases should certainly be immune, and so should individuals with profound bilateral lesions of the acoustic labyrinth. No evidence of this kind could be established. Deaf mutes are not immune to seasickness."

The lack of relation between the vestibule and seasickness is seen in another detail. According to Achard, in seasickness the acoustic phenomena, as he says, are inconstant or absent, or they occupy a secondary place; disorders of hearing, in a word, are not a consequence of this form of illness. But, if it were vestibular in origin the acoustic phenomena could not be absent or transitory. He attributes any slight deafness during seasickness to a momentary increase of pressure of the lymph, or to congestion or ischemia of the brain. But, he adds, these are also phenomena of Menière's disease.

A special difficulty for the advocates of the auditory theory is the fact that in Menière's disease the essential element is an increase of pressure in the endolymph of the semicircular canals. The increase of tension is lacking in seasickness, as Trocello found, or the alterations of pressure were sufficient only to disturb the sense of equilibrium; they produced neither deafness nor subjective noises in the ears. On the other hand, he states it is impossible to deny that the triad of symptoms in Menière's disease—vertigo, noises in the ears and hypoacusis—may also occur in seasickness. It is when we

come to analyze the vertigo that differences appear. In Menière's disease it is labyrinthine in origin, but in seasickness, as the case of deaf mutes and animal experiments show, it is of more complex causation.

In these new studies nothing is more illuminative than the inquiry into the nature of the vertigo of seasickness. It is generally said that rotary vertigo, the vertigo of electric stimulation and Barany tests, is vestibular. As to seasickness, there is the opinion of Leri that "marine vertigo and mountain vertigo are due to the rapid modifications of pressure in the endolymph of the internal ear, and that of Cyon and Gaglio who sought to demonstrate by experiments on animals that the endolymph could be removed utterly without causing a disturbance of equilibrium. The truth lies between two extreme views, according to Trocello. An organ exquisitely equipped with a sense of hearing and balance must be affected by the motion of the sea, but, on the other hand, it is curious that vertigo is not regularly caused by the exercises of acrobats and other violent movements.

The explanation is, therefore, to be found in a general disturbance produced by passive movements of the body. By passive movements are understood those caused by a swing or hammock and the rolling of a ship, all of which place the body in unaccustomed positions with abrupt changes of its axis, or, as Trocello prefers to say, of the static and dynamic equilibrium of the body. The vertigo of seasickness is peripheral in origin, a disturbance of the general kinesthetic sense. In more specific language, it is the result of stimuli to the peripheral nerves, which convey the irritation to the vagus, the auditory nerve, and the vasomotor nervous system, and thence to the walls of the stomach and abdomen. The essence of this somewhat abstract conception is that any abnormal position of the body, even if there is no vibration or other motion, will produce seasickness. This is the explanation of the fact that it comes on gradually and even when a ship is in port and there is no motion.

Some support has been given to this view by the recent studies of Naame (*Endocrinologie*, 1917). He connects seasickness with a deficiency of the secretion of the suprarenal glands. Thus: "The motion of the waves produces an irritation of the abdominal viscera, causing, through the medium of the solar plexus, an inhibitory action on the suprarenal glands; thence

there is a reflex hypoepinephria, revealing itself by the following symptoms: vomiting, constipation or diarrhea, asthenia, hypotension. The analogy to seasickness is striking."

Without attempting to place these views, it may be said that there is no improbability in certain facts which they allege, namely, that seasickness is a general disorder of equilibrium with the secretions of the glands and the vaso-motor nerves as accessory factors. It may be fairly said that the analysis by Trocello and Naame has been achieved after much actual experience among troops and emigrants. It may perhaps be premature to see cause and effect in seasickness and a disorder of the kinesthetic sense and the internal secretions, but, on the other hand, there may be a close relation.

THE CRIPPLED SOLDIER.

Two recent pamphlets by Douglas C. McMurtrie, entitled "The Organization, Work and Method of the Red Cross Institute for Crippled and Disabled Men," and "Reconstructing the Crippled Soldier," are of great value in bringing to the public attention the needs and methods of helping this class of men. It is for us to recognize our social responsibility and so to mould public opinion that, instead of further handicapping the disabled man by prejudice, he may receive our constructive sympathy and encouragement.

The first pamphlet deals with steps which the Red Cross Institute has already taken with the purpose of providing for the economic and social rehabilitation of disabled men. Instead of waiting for war cripples, the organization has already begun its work in assisting industrial cripples, with the hope that through the experience so gained, timely and efficient aid may be given to men incapacitated by the war.

In re-educating the cripple, the first step involves an individual study of the man, his educational and industrial experiences, his tastes and aptitudes. Thorough trade training is not possible because of economic necessity and the attitude of the average adult to education as such. Attempts are made, however, to sharpen the cripple's remaining powers, to compensate for the physical loss sustained.

There are four trades to which disabled men

may be easily adapted: manufacture of artificial limbs, oxy-acetylene welding, mechanical drafting and printing. Other trades are under consideration.

Various departments of the Institute help the men in the different stages of rehabilitation. The Department of Field Work gets in touch with prospective pupils. Social workers visit men at hospitals, gain their confidence, and help them to plan their future. "Parties" are arranged so that disheartened cripples may meet and gain courage from others who have overcome their handicaps. The Employment Department tries to overcome the prejudices of employers by placing scientifically trained men in their charge. The follow-up work carried on by this department is of great value.

In order to help the cripple further, a survey is being made of industrial processes, in order to find the best opportunities for cripples; a library has been formed which contains all the available books and pamphlets about all sorts of cripples; furthermore, a research department gathers material from Great Britain, France, Italy, Germany and Canada, so that mistakes may be avoided by learning of the experiences of others.

The Department of Public Education endeavors to show the public that its intelligent and sympathetic coöperation is vitally essential in restoring the war cripple to a position of social and economic independence. Through the News Service, Publicity Service, periodical articles, photographs, and public speaking agencies, a large number of people are forced to think and to interpret the problem of the military cripple.

The pamphlet, "Reconstruction of the Crippled Soldier," emphasizes further the need of adopting the most helpful attitude toward the cripple. Every inch of productivity is needed, and the return to labor benefits the cripple even more than the State. The process of rehabilitating the crippled soldier is discussed in detail from the time he begins to learn anew the use of his limbs and artificial appliances to the time when he is permanently employed. The importance of the right type of personal influence is emphasized. The training for various trades is described.

A plea is made that the American public shall not allow the cripple to testify that the "handicap of public opinion" is a greater obstacle than the loss of a limb. We must give the man

disabled in our service whole-hearted gratitude, but we must not pamper him and force him to lead a life of idleness. The United States national authorities have accepted the responsibility of re-educating the men injured in service, and the Government is already inaugurating vocational training. America may have physical cripples, but let her have no social and economic cripples resulting from her participation in this war for justice and humanity.

VOCATIONAL TRAINING IN WAR TIME.

IN the "Publications of the Red Cross Institute for Crippled and Disabled Men," number 6 of series I, is a description of "Tourvielle: A Trade School for War Cripples," by Gustave Hirschfeld. The article, written by one who has been so intimately connected with the school, gives a clear picture of that most worthy enterprise, and should act as an incentive to the general public to support similar institutions.

Edouard Herriot, Mayor of Lyons, first proposed vocational training for war cripples in an article in the *Paris Journal*, November, 1914. One week later, his plan for founding such a school in Lyons was approved by the municipal council of that city, and two weeks later, the school was opened. This school was established in an old building owned by the city. Before the renovation of the structure was quite complete, M. Herriot, with characteristic energy, had introduced his first pupil. The institution grew so rapidly that very soon a new school had to be provided, and in July, 1915, the second school was formally opened as the *École de Tourvielle*.

By October, applicants to the number of one hundred had been admitted; many had been turned away because accommodations were insufficient. Enlargement was again necessary. The Mayor and Board of Directors planned for the building of large wooden pavilions on the fourteen acres which the school owned. New courses were added. Each trade was to be housed in its own building. Everything is done for the health and comfort of the men. Sanitary conditions prevail throughout the grounds and buildings. Recreation, in the form of billiards and other similar amusements, is enjoyed by the pupils whose aptitudes and physical capaci-

ties permit it. The school budgets are now incorporated in the city budget, and the Mayor of Lyons appoints a board of directors who govern the institutions.

The Lyons schools for vocational training are open to men whose disability puts them in one of the first five classes eligible for discharge with pensions. Questionnaires must be filled out and considered before the applicant is admitted. When admitted, the pupil has a choice of a number of courses of which a few are: bookkeeping, stenography, typewriting, paper box making, book binding, toy making, goloshe making, tailoring, carpentering and cabinet making, fur work, manufacture of artificial limbs and orthopedic appliances, wireless telegraphy, and horticulture, given at the *École de Tourvielle*. The average length of courses is anywhere from six months for bead work, to eighteen for carpentering and tailoring. That the training may be not merely vocational, evening classes in regular school subjects are held. Instruction is given in French, history, geography, arithmetic, science, hygiene, and on the progress of the war.

Pupils are generally required to live at the school. Everything is furnished free. Pupils receive remuneration for their work; this pay is equal to the full value of the product minus 15%, deducted for running expenses of the school. Strict obedience to the rules of the school is insisted upon. Thrift is fostered so that when the men have completed their courses they are ready and able to start over again.

The practical results of the work begun by M. Herriot summarized. On June 18, 1917, three teen Medical Service Corps of the Council of war, had finished or were still serving an apprenticeship at *Tourvielle*. Some pupils left without finishing their courses because they were able to secure work immediately. Others were expelled for violation of rules concerning temperance and general conduct. All who remained were given a thorough training so that they have become "good workmen and useful citizens."

A FIVE MILLION ARMY MEANS FIFTY THOUSAND MEDICAL OFFICERS.

WITH an army of three million men in the field or in training and, as contemplated, an expansion of this force to five million men, the Surgeon-

General must have in the Medical Reserve Corps at last fifty thousand doctors.

The Medical Corps must keep apace in growth with the army expansion, and it behooves every doctor in the United States between the ages of 21 and 55, who is physically, morally and professionally fitted, to arrange, at the earliest possible moment, his personal affairs so as to offer his services to his country in the capacity of a medical officer.

The United States is in the war to do her part in winning the struggle and this can be accomplished only by a large and well trained body of troops adequately cared for by sufficient medical officers. The importance of the doctor's service and its relation to the successful outcome of the war cannot be underestimated.

As the mobile forces increase in size, so is there an expansion of base hospitals and other institutions for the care of the sick and wounded, and there should be no lack of officers when required to give to our patriotic boys that professional attention which is so essential.

It is well for the medical profession of the United States to realize at once that a Medical Reserve Corps of at least 50,000 doctors will be required to meet the demands of the Surgeon-General and upon which Corps he can draw for his medical officers.

We believe by this time that the profession of the country must be fully alive to the needs of the service, so let every doctor who is qualified feel that he is doing not only his patriotic duty in offering his services as a medical officer, but is relieving the tension of the Surgeon-General's office by placing at the command of the Chief Officer of the Medical Department an adequate force without the frequent beating of drums to supply the necessary number with each increase of the mobile forces.

If you have not already received an application blank for commission in the Medical Reserve Corps your nearest Examining Board or the editor of this journal will be glad to supply you.

MEDICAL NOTES.

PUBLIC WARNED OF GRIP EPIDEMIC.—An epidemic of influenza prevails among the sailors stationed at Commonwealth Pier, and the State Department of Health has issued a warning to

civilians to take such measures as they can to protect themselves from the expected spread of the disease. More than 350 cases have been unofficially reported from the pier within a week.

Dr. John S. Hitchcock, in charge of the division of communicable diseases, is reported to have said:

"Unless precautions are taken, the disease in all probability will spread to the civilian population of the city. The malady appears to be in the nature of old-fashioned grip. No deaths have occurred. The naval medical authorities who have the matter in charge are doing everything possible to control the outbreak.

"With a focus of infection of this size, it seems probable that the disease will escape into the civil community in spite of all efforts at control. People should be reminded that under these conditions, persons with coughs and colds are not choice companions, and that a good doctor is a friend. It should also be remembered that our past experience with this disease has shown the danger of persons suffering from it continuing at work or trying to return to their occupation sooner than safety dictates."

MEDICAL NOTES FROM ANCIENT MESOPOTAMIA.

—*The Lancet* has published recently the following information about the status of medicine in ancient Mesopotamia:

"Dr. Paul Haupt, of Johns Hopkins University, has, in the *United States Oriental Research Journal*, been giving a revised translation of the difficult cuneiform text in the *Annals of Assurbannipal*, king of Assyria, describing the illness of Teumman, king of Elam, with whom the Mesopotamians were at war. This record has been for the last 40 years differently rendered, and was thought to indicate that the disease was rabies, because one sentence is capable of being read as 'he behaved like a mad dog;' but Professor Haupt, after an elaborate discussion of the text from our knowledge, now so advanced, of the cuneiform vocabulary, and a comparison of the words with their congeners in other Semitic dialects, shows that the following is the correct translation. 'At that time he (Teumman) had an attack, his lip slavered, his eye rolled; wildness was imparted to it.' This version agrees quite closely with the malady being an epileptic

fit, for during an attack of morbus sacer the eyes roll wildly and the sufferer foams at the mouth. The ancients were agreed that such disease was specially inflicted by the gods, and in a further part of the inscription the origin of it is attributed to Assur and Ishtar.

"The existence of veterinary surgeons in very early times in Babylonia is disclosed by the ancient law code of King Hammurabi. This is confirmed by a cuneiform tablet, Rm 362 in the British Museum, which, though much defaced, scholars can detect gave a list of plants useful for treating colic in the horse. One line reads, 'Plant for abdominal cutting pain in the horse.' Other lines read in Babylonian what is most nearly translated by '*Contunde in vino, ugue ad abdomen.*' This tablet probably presents the earliest known instance of cataplasmata being utilized for treatment of colic of the horse.

"Dr. Felix von Oefe, whose residence appears now to be in New York, has been writing in the *Journal of the American Oriental Society* upon a Babylonian statuette of the jerboa, or Egyptian jumping mouse, especially with regard to the accurate representation of zoological details showing careful morphological observation. The double length of the tibia in comparison with the femur is carefully copied. The animal is still to be found in the Western Babylon desert, and doubtless it was there, and not in the Sinai peninsula, that the artist obtained the specimen he copied."

WAR NOTES.

APPOINTMENTS IN THE MEDICAL RESERVE CORPS.—The following appointments in the Medical Reserve Corps have been announced:

Major: Hunter Robb, Winchester.

Captains: William G. Curtis, Wollaston; James S. King, St. Albans, Vt.; John J. McNamara, Brockton; David L. Martin, Dorchester.

First Lieutenants: Robert E. Andrews, Cambridge; William M. Collins, Lowell; Alexander S. MacMillan, Boston.

DR. CALLAHAN APPOINTED CAPTAIN.—Dr. John F. Callahan of Brockton has been commissioned a captain in the Medical Reserve Corps and is awaiting a call. He was born in Marlboro, and is a graduate of Tufts Medical School. He attended, also, Brown University and Manhattan College and spent one year

in Vienna. He has practiced in Brockton for several years.

GERMANS BOMB RED CROSS HOSPITAL.—German aviators recently bombed the large "Red Cross" between the wings of the French-American Hospital southwest of Soissons. There were no casualties, as the patients were removed to caves when the bombing began, soon after dark.

Eighteen bombs were dropped, two striking the Red Cross, which is built of red in a great field of white. When the alarm was sounded the attention of attendants was turned to the wounded who were taken to caves. The slightly wounded retired without aid and there were several instances of slightly wounded patients assisting the attendants in carrying the seriously wounded to places of safety. The first bomb struck near a tent and two others struck the Red Cross.

Owing to the darkness, due to the extinguishing of all lights, there was great confusion, but not a single patient or attendant was injured. Hospital doctors related with pride the bravery of the women nurses and the number of instances where nurses went to and fro from the eaves to the hospital beds during the raid to make sure that all of the patients were under shelter.

GERMAN PRISONERS DIE IN TYPHOID EPIDEMIC.—Eighteen German prisoners at the internment camp at Hot Springs, N. C., have died of typhoid in an epidemic of 177 cases, the War Department announces. All the patients have been transferred to army general hospital No. 12 at Biltmore, N. C., and all remaining prisoners at the camp have been transferred to the internment camp at Fort Oglethorpe, Ga.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 7, 1918, the number of deaths reported was 179, against 230 last year, with a rate of 11.90, against 15.53 last year. There were 27 deaths under one year of age, against 66 last year.

The number of cases of principal reportable diseases were: diphtheria, 27; scarlet fever, 7; measles, 5; whooping cough, 25; typhoid fever, 9; tuberculosis, 34.

Included in the above were the following

cases of non-residents: diphtheria, 1; whooping cough, 1; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 3; whooping cough, 2; typhoid fever, 1; tuberculosis, 16.

Included in the above were the following non-residents: typhoid fever, 1; tuberculosis, 1.

NOTICE.

The Physicians of Somerville have dropped morning office hours and have adopted uniform hours of two in the afternoon and seven in the evening, excepting Sundays and Holidays.

Office hours are reserved for office patients, other hours are for house visits. Owing to the extra demands on physicians, they cannot see patients except according to schedule.

Your physician is so busy that if you call him late in the day he may not be able to see you until the next day. Please call him early so as to save the increased tax on his strength which necessitates an increased fee.

Do not call your doctor in a hurry or expect him to do night work except in emergencies.

Help the doctor by following these rules that he may be able to help you.

Somerville Medical Society.

Miscellany.

VOLUNTEER MEDICAL SERVICE CORPS. MASSACHUSETTS EXECUTIVE COMMITTEE.

The Central Governing Board of the Volunteer Medical Service Corps of the Council of National Defense announces that the Massachusetts State Executive Committee of the Volunteer Medical Service Corps is composed of the following doctors:

Walter L. Burrage, M.D., 42 Eliot St., Jamaica Plain, Boston.

J. Emmons Briggs, M.D., Boston.

E. A. Bates, M.D., 55 Chestnut St., Springfield.

Forest G. Martin, M.D., Lowell.

Walter P. Bowers, M.D., Chairman, 1 Beacon St., Boston.

Henry Jackson, M.D., 380 Marlborough St., Boston.

Frederick B. Perey, M.D., 194 Aspinwall Ave., Brookline.

F. W. Anthony, M.D., 50 Merrimack St., Haverhill.

The purpose of this committee is to cooperate with the Central Governing Board in prosecuting all activities pertaining to the mobilization and enrollment of members of the Volunteer Medical Service Corps throughout the state.

The Central Governing Board of the Volunteer Medical Service Corps also authorizes the appointment of one county representative in each county in every state of the Union. The county representatives for Massachusetts are as follows:

MASSACHUSETTS

<i>Barnstable</i>		
John P. Nickerson		W. Harwich
<i>Berkshire</i>		
Henry Colt	193 South St.	Pittsfield
<i>Bristol North</i>		
F. A. Hubbard	157 High St.	Taunton
<i>Bristol South</i>		
Charles A. Pratt	60 Orchard St.	New Bedford
<i>Essex North</i>		
I. J. Clarke	112 Emerson St.	Haverhill
<i>Essex South</i>		
W. T. Hopkins	7 Atlantic St.	Lynn
<i>Franklin</i>		
H. G. Stetson	17½ Federal St.	Greenfield
<i>Hampden</i>		
Frederick B. Sweet	81 Chestnut St.	Springfield
<i>Hampshire</i>		
E. W. Brown	39 Main St.	Northampton
<i>Middlesex East</i>		
E. S. Jack	56 W. Emerson St.	Melrose
<i>Middlesex North</i>		
Chas E. Simpson	9 Central St.	Lowell
<i>Middlesex South</i>		
George T. Tuttle	McLean Hospital	Waverley
<i>Norfolk</i>		
E. N. Libby	1990 Columbus Av.	Roxbury
<i>Norfolk South</i>		
J. H. Ash	239 Copeland St.	West Quincy
<i>Plymouth</i>		
Gilman Osgood	258 Union St.	Rockland
<i>Worcester</i>		
M. F. Fallon	390 Main St.	Worcester
<i>Worcester North</i>		
W. F. Sawyer	67 Prichard St.	Fitchburg

VOLUNTEER MEDICAL SERVICE CORPS.

Mr. Editor:—

In response to numerous requests the accompanying report of the Committee on Classification of the Central Governing Board, Volunteer Medical Service Corps, Washington, is printed. The Rules and Regulations of the Corps appeared in the *Journal* of August 22, 1918, pages 283-284.

W. L. BURRAGE, Secretary.

REPORT OF COMMITTEE ON CLASSIFICATION OF THE MEDICAL PROFESSION AND RECOMMENDATION THAT MEMBERS OF THE VOLUNTEER MEDICAL SERVICE CORPS BE ENROLLED UNDER THE FOLLOWING CLASSES AND RULES.

All registered physicians of the United States who are not attached to a Government Service may apply for membership in the Volunteer Medical Service Corps.

All applicants are to be admitted to the Volunteer Medical Service Corps if qualified under the rules of organization.

Class 1. All members in Class 1 will be the first called upon by the Central Governing Board to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with not more than one dependent in addition to self.

(b) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and who have an income or whose dependents have an income sufficient for the support of dependents other than that derived from the practice of their profession.

Exceptions in Class 1.

(a) *Essential to Communities.*—Essential to communities to be established by the Central Governing Board on recommendation of representatives of the Central Governing Board, appointed by the Central Governing Board to make a survey of local conditions.

(b) *Essential to Institutions.*—Essential institutional needs to be established after conference between representatives of the Central Governing Board of the Volunteer Medical Service Corps and representatives appointed by governing bodies of the institutions concerned.

(c) *Essential to Health Departments.*—Essential to Departments of Health to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps, and Heads of Health Departments.

(d) *Essential to Medical Schools.*—Essential teachers in Medical Schools to be established by the Central Governing Board.

(e) *Essential to Industries.*—Essential to

Industries to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and accredited representatives of industries concerned.

(f) *Essential to Local and Medical Advisory Boards.*—Essential to Local and Medical Advisory Boards to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and representatives of the Provost Marshal General's Office.

Class 2. All members in Class 2 will be called upon by the Central Governing Board, when the need exists, to apply for commissions in the Medical Reserve Corps of the Army Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with not more than three dependents in addition to self.

Exceptions in Class 2.

(a) Essential to Communities.

(b) Essential to Institutions.

(c) Essential to Health Departments.

(d) Essential to Medical Schools.

(e) Essential to Industries.

(f) Essential to Local and Medical Advisory Boards.

Class 3. All members in Class 3 will be called upon by the Central Governing Board, when the need exists, to apply for commissions in the Medical Reserve Corps of the Army Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with more than three dependents in addition to self.

Exceptions in Class 3.

(a) Physicians essential to Communities.

(b) Essential to Institutions.

(c) Essential to Health Departments.

(d) Essential to Medical Schools.

(e) Essential to Industries.

(f) Essential to Local and Medical Advisory Boards.

Class 4. Physicians in Class 4 are ineligible for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, but are available for all other services, when the

need exists, upon the direct authority of the Central Governing Board, and are classified under the following rules:

- (a) Physicians over 55 years of age.
- (b) Physicians with an obvious physical disability which is disqualifying.
- (c) Physicians rejected for all Government Services because of physical disability.
- (d) Women Physicians.

NOTE.—Physicians not professionally eligible for the Medical Reserve Corps of the Army or Reserve Force of the Navy, or for appointment in the Public Health Service will be recorded but not admitted to the Volunteer Medical Service Corps.

Correspondence.

BIRTH DECLINE. A SUGGESTED REMEDY.

Flaverhill, Mass., Sept. 6, 1918.

Mr. Editor:

In reading the article on declining birth rate in your Journal, several reasons entered my mind. I have in mind several families of large numbers whom all the neighbors pity. How often have I heard a neighbor remark, "What is she going to do with this one coming?" The father of such families is generally not very skilled in labor and may earn only \$15 to \$25 a week. This sum is insufficient for a family of 6 or 8. The result is generally a neglect of the children. They are underfed and kept in unsanitary homes. The sleeping rooms are overcrowded and poorly ventilated.

If the father and mother had no children they would get along very comfortably.

The cost of attention to a mother in labor is \$70 at the lowest. If they go to the hospital in some cities they must either pay or become paupers.

How long is such a condition to remain. With the loss of males in this war we need immediate relief. It is a State question as well as a national one. Why should a woman, who is raising a family, be pitied while a "lady" of forty without any be considered lucky.

While we cannot correct this condition by law entirely we can help the women who are willing to do their duties as mothers.

Let the State allow each woman who brings a child into the world three dollars a week. Increase this to four dollars when the third child arrives and five dollars when the sixth appears. Then the exclamation will change and instead of "what a pity" we have "what great luck." Many families

will increase and the worry of where food and clothes are coming from for the next arrival will disappear. I am getting tired of borrowing a shirt from one neighbor, a towel or diaper from another and so on. Can't the society recommend legislation the same as it can pure food laws. It is one of the things that must be attended to or instead of a decline it will be an abrupt halt.

Yours

P. NETTLE, M.D.

NOTICES.

DIAGNOSTIC LABORATORY SERVICE.—Because the war has caused the withdrawal of so many physicians from private practice, the Boston Dispensary wishes to extend its usefulness to patients of moderate means by offering diagnostic laboratory service to their physicians. By so doing, it does not intend to compete with private laboratories. Fees charged are to cover the cost of service. A schedule will be furnished to any physician.

This diagnostic service may be obtained in the following ways:

- (1) Specimens may be submitted directly by the physician.
- (2) It preferred, patients may be sent with a note to the Laboratory indicating the character of the examination desired. Time for receiving patients is daily from 2.00 to 4.00, except Saturdays, Sundays and holidays; patients will also be seen on Mondays, Wednesdays and Fridays from 6.30 to 7.30 P.M.; other times by special appointment.

- (3) Upon the physician's request, an assistant will visit the home or an institution to obtain the desired specimen. The charge for this service will be seventy-five cents per hour.

In all instances reports will be promptly sent to the physician only. Whenever it is desired, the physician may consult with the pathologist, Dr. William A. Hinton, regarding the interpretation of reports.

Where the patient cannot afford to pay the schedule fee, an adjustment will be made in accordance with the financial condition.

MICHAEL M. DAVIS, JR., *Director*,
Boston Dispensary.

MARRIAGES.

DR. ANNE L. HOOPER, of West Somerville, and DR. ALEXANDER STEWART MACMILLAN, assistant roentgenologist at the Boston City Hospital and an instructor in clinical medicine at Tufts Medical School, were recently married. Dr. Macmillan will enter the medical corps as a roentgenologist within a few days. Both Dr. and Mrs. Macmillan are graduates of Tufts Medical School.

APPOINTMENT.

LLEWELLYN H. ROCKWELL, M.D., has been appointed resident physician at Long Island Hospital, to succeed Dr. Arthur L. Kinne.

The Boston Medical and Surgical Journal

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MORTALITY FROM ORGANIC DISEASES OF THE HEART AMONG WAGE EARNERS, 1911 TO 1916.

BY LOUIS I. DUBLIN, PH.D., NEW YORK,
Statistician, Metropolitan Life Insurance Company.

THE deaths classified as due to "organic diseases of the heart" form a group which is second in numerical importance only to tuberculosis, in this mortality experience of insured wage-earners.* In the experience of the general population of the expanding registration area in recent years, organic heart disease has ranked first as a cause of death. During the six-year period, 1911 to 1916, 75,345 deaths from organic cardiac diseases were recorded among the Company's industrial policyholders. This number is 11.9% of the 634,499 deaths from all causes. The deaths correspond to a rate of 140.1 per 100,000 exposed. This is for the entire experience period; but in four of the six years, the rate was higher than that for the period as a whole.

The chief interest in connection with the study of the mortality from cardiac diseases lies, of course, in its variable age, color and sex incidence. The disease is primarily one of ad-

vanced life, although, as we shall see, it takes a significant toll at the younger adult ages. The rate is considerably higher among colored persons than among the white group, which condition also obtained in the registration area for the period as a whole and for each included year. This was true for each sex for every significant age group with the exception of that relating to decedents 75 years of age and over.

The death rates are very different for the two sexes. Almost without exception, the rates for females are higher than for males up to and including the age period 20 to 24 years. After this age period, however, the situation is reversed, the death rates for males being very much higher than for females. This is uniformly true for white lives but there are a few exceptions among the colored. It would appear, therefore, that these organic heart diseases in their higher incidence among adult males strike heavily at the chief, or only, income producers in families; often after long periods of sickness in which the wage-earner has been unable to work actively all or part of the time. These diseases thus bring about hardship and distress which can not be shown in figures. In fact, if it were possible to calculate the money loss to the country through deaths from heart affections and the long periods of sickness which precede them, the importance of cardiac disease economi-

* From a forthcoming work, "Mortality Statistics of Wage-earners in the United States and Canada."

cally would be much more impressively demonstrated than is possible by the publication of mere numbers of deaths and the corresponding death rates.

Considered irrespective of color or sex, we find that the death rates for the organic diseases of the heart increase regularly with age, but show their greatest increases in the higher age periods. This is brought out clearly in the following table.

TABLE I.

MORTALITY FROM ORGANIC DISEASES OF THE HEART, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD. DEATH RATES PER 100,000 PERSONS EXPOSED. 1911 TO 1916. EXPERIENCE OF METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT.

AGE PERIOD	PERSONS	WHITE		COLORED	
		MALES	FEMALES	MALES	FEMALES
All ages	140.1	125.9	137.0	191.0	202.0
1 to 4	7.3	7.0	6.4	14.1	14.6
5 to 9	16.0	14.9	18.2	11.4	14.1
10 to 14	25.5	22.7	31.4	19.9	28.3
15 to 19	30.2	28.7	31.2	29.4	34.9
20 to 24	30.6	28.5	30.4	32.2	42.8
25 to 34	53.5	51.6	45.6	89.6	72.8
35 to 44	121.8	120.1	92.6	201.2	211.7
45 to 54	245.6	259.0	201.1	416.0	433.1
55 to 64	604.8	641.2	526.8	885.4	787.8
65 to 74	1523.1	1624.2	1443.0	1702.2	1530.3
75 and over	2808.1	3033.1	2703.1	2647.8	2613.2

Significant relations may be brought out by comparing the foregoing figures for white persons with those for the total expanding registration area of the United States. We shall use for this purpose the population figures for the six-year period 1910 to 1915 inclusive. Taking all ages one and over together in the two experiences, we find that the mortality rate for insured white males (125.9 per 100,000) was lower than that for males of the registration area (147.0 per 100,000) and that the rate for insured white females (137.0) was lower than the rate for females in the general population (140.7). No mistake should be made, however, as to the meaning of these figures. The apparent advantage in favor of the insured group results simply from their more favorable age distribution. A larger proportion of them are in the younger age groups where the death rate from the heart diseases is low, and only a small proportion of the policyholders are found in the advanced ages when the death rate from these conditions is very high. A comparison between the two series must, therefore, be strictly limited to each age period and to each of the sex groups separately.

The following table shows, side by side, the figures for males in the expanding registration

area, compared with those for white insured males and for females in the registration area compared with insured white females.

TABLE II.

MORTALITY FROM ORGANIC DISEASES OF THE HEART. DEATH RATES PER 100,000 PERSONS EXPOSED. INSURED WHITE LIVES IN EXPERIENCE OF METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT (1911 TO 1916) AND GENERAL POPULATION EXPERIENCE OF EXPANDING REGISTRATION AREA OF THE UNITED STATES (1910 TO 1915).

Classified by Sex and by Age Period.

AGE PERIOD	MALES			FEMALES		
	M. L. I. Co. (WHITE)	U. S. REG. AREA	PERCENTAGE M. L. I. Co. OF REG. AREA	M. L. I. Co. (WHITE)	U. S. REG. AREA	PERCENTAGE M. L. I. Co. OF REG. AREA
All ages	125.9	147.0	85.6	137.0	140.7	97.4
1 to 4	7.0	7.6	92.1	6.4	7.6	84.2
5 to 9	14.9	12.6	118.3	18.2	15.3	119.0
10 to 14	22.7	16.6	136.7	31.4	21.2	148.1
15 to 19	28.7	19.7	145.7	31.2	20.4	152.9
20 to 24	28.5	20.0	142.5	30.4	23.0	132.2
25 to 34	51.6	33.4	154.5	45.6	36.9	123.6
35 to 44	120.1	76.0	158.0	92.6	76.8	120.6
45 to 54	259.0	175.5	147.6	201.1	160.9	125.0
55 to 64	641.2	474.4	135.2	526.8	409.2	128.7
65 to 74	1624.2	1213.8	133.8	1443.0	1044.1	138.2
75 and over	3033.1	2665.6	113.8	2703.1	2438.6	110.8

Thus compared, a very different picture is presented, for, with the single exception of the period of early childhood, namely, one to four years, the death rates are much higher for the insured group than for the general population. It is especially at the working ages of life that the disadvantage of the policyholders is evident. The facts of mortality from organic diseases of the heart, as for tuberculosis, show with advancing age the cumulative effect upon the vitality of wage-earners of more severe conditions of life and work, and, perhaps, of less favorable hygienic circumstances than are found in the general population of the United States.

This conclusion is apparently substantiated when we compare the relation between the death rates of the two sexes in the population and in the insured group. We find, for example, in the twenty-year age period from 25 to 45 years, very much higher rates for males than for females in the wage-earning element. On the other hand, in the general population, females at these ages do not enjoy any such advantage; in fact, the rates are slightly higher for them than for the males.

This would seem to be the result of the severer strain of life and work to which male wage earners are exposed.

The trend of the death rate from organic heart diseases in the industrial department of the Metropolitan Life Insurance Company during the six years is interesting and is in marked contrast with the tendency shown by the figures of the general population. In the insurance figures the rate for 1916 is lower than for 1911 (140.2 as compared with 141.8). This represents a decline of 1.1% in the period. On the other hand, in the expanding registration area the figures show a very considerable increase in the six-year period from 140.9 in 1911 to 150.1 per 100,000 in 1916 (6.5%). It is quite true that in both experiences there is a certain irregularity in the trend; but the rates for the insured group very generally speaking show a downward tendency, whereas those for the population, especially since 1913, show a continuous rise. The changes that have occurred in the population figures are even more strikingly brought out when we go back a number of additional years. In 1900 the registration area rate was only 111.2 per 100,000; by 1904 it had, through continuous increases, reached 133.4. From that year until 1911 there was considerable fluctuation; the 1911 rate, 140.9, marked a 26.7% increase over the figure for 1900.

The following table presents the trend of mortality among insured wage-earners in the years 1911 to 1916.

TABLE III.

MORTALITY FROM ORGANIC DISEASES OF HEART, CLASSIFIED BY COLOR, AND BY SEX. DEATH RATES PER 100,000 PERSONS EXPOSED. SINGLE YEARS IN PERIOD 1911 TO 1916. EXPERIENCE OF METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT.

YEAR	PERSONS	WHITE		COLORED	
		MALES	FEMALES	MALES	FEMALES
1911 to 1916	140.1	125.9	137.0	191.0	202.0
1916	140.2	126.0	135.8	197.2	212.9
1915	136.7	119.4	136.1	183.9	207.1
1914	138.1	125.5	134.6	191.5	193.1
1913	140.6	127.3	137.2	194.6	193.9
1912	143.8	129.4	139.5	202.6	205.7
1911	141.8	128.8	139.9	175.5	198.7

The increase in mortality from organic heart diseases which we have just discussed for the registration area has, in recent years, given rise to the prevalent opinion that there has been a marked increase in the so-called "degenerative diseases." Certainly this conclusion is not substantiated by the facts presented by the mortality data for insured wage-earners. If, however, we limit ourselves to a consideration of the ex-

panding registration area alone, we should keep in mind that even these data, with their marked increases in the interval since 1900, must not be taken on their face as final. The Census Bureau itself has continually cautioned the readers of its reports on mortality statistics against comparing the more recent figures for organic diseases of the heart with those running prior to 1910. Very important changes in the statistical treatment of this return of death have been instituted by the Census Bureau. Certain statements of cause, such as "endocarditis" and "myocarditis" for decedents over 60 years of age, which were formerly excluded from this title, are now classified under it. Methods of treating jointly reported causes of death as well as the accelerated tendency of physicians to report more definitely the conditions causing death, have undoubtedly resulted in the increased reporting of organic diseases of the heart. The evidence, therefore, is clear that a large part, at least, of the increase in the death rate of the heart diseases is fictitious, resulting merely from changed procedure; and, so far as this concerns insured wage-earners, where the greatest amount of increase might be expected, it does not show at all.

"Organic diseases of the heart," International List Title No. 79, as compiled in this present study, includes all chronic valvular diseases, fatty degeneration, chronic myocarditis and chronic dilatation. It includes a number of deaths which are ascribed by physicians to "heart disease" without further definition. It also comprehends chronic heart diseases of rheumatic origin. On the other hand, the title does not include acute endocarditis, acute myocarditis, "endocarditis" or "myocarditis" with no further qualification, for decedents under 60 years of age. Deaths reported as due to pericarditis and those reported as due to any indeterminate cardiac symptoms such as "palpitation of the heart," "functional disease of the heart" and others are not included.

DR. CARROLL C. BURPEE RECEIVES COMMISSION.—Dr. Carroll C. Burpee of Malden, a children's specialist and general physician, has received a captain's commission and has been ordered to report at once to Fort Oglethorpe, Georgia.

MILITARY ORTHOPEDIC SURGERY: ITS SCOPE AND AIMS.*

BY SIR ROBERT JONES, C.B., CH.M., D.Sc., F.R.C.S.,
Major-General, A.M.S.; Inspector of Military Orthopedics.

I HAVE been requested to state briefly the way in which we deal in this country with the group of cases classified under "Military Orthopedics."

NATURE OF CASES: DEPARTMENTS OF AN ORTHOPEDIC CENTER.

Both at home and in America the definition practically covers the surgery of the extremities. The Army Council Instruction includes under the term "orthopedic" ankylosis of joints, deformities and disabilities of the feet, malunited and ununited fractures, injuries to the peripheral nerves, and conditions requiring the transplantation of tendons. This represents a very large proportion of the injuries of war, so that constant effort is being made to increase our accommodation, which is at present inadequate. We opened our first orthopedic hospital in Liverpool in 1915 with 250 beds, and now we have centers scattered over Great Britain and Ireland with well over 25,000 beds.

In organizing an orthopedic center we decided to have every department represented, and that these departments should be so related that while they interdigitated they should not overlap. Our experience of uncontrolled special departments led us to conclude that they were lacking in a sense of proportion, and that cases were being bathed, massaged, or electrified which required fundamentally different treatment. Unless these special departments are guided by men with an orthopedic training they might as well not exist. In one institution which we visited we found several men being massaged who should have had their torn nerves sutured. Others being electrified required preliminary tenotomies, while the subjects of arthritis were undergoing harmful movements in Zander machines. Again, attempts were being made to break down old septic joints which required the gentlest care. From all the evidence it was clear that special departments should be controlled by well-trained surgeons, and remain in association with orthopedic centers.

An orthopedic staff will consist of neurologists, operating surgeons and their assistants, and the chiefs of departments. Consultations are encouraged and take place between the chiefs of the various sections, and the powers and limitations of each department are soon appreciated. The coöperation between the departments is of the most friendly character, and the chief of massage is in constant touch with the chiefs of electrotherapy and curative workshops.

The departments for treatment consist of: (a) Curative workshops; (b) gymnasium; (c) massage; (d) electrical treatment; (e) baths.

THERAPEUTIC VALUE OF WORK: ACTIVE AND PASSIVE MOVEMENTS.

Perhaps the most interesting development is the curative workshops. Obviously, a very large proportion of the inmates of an orthopedic center are of chronic type. Many of them have passed through various hospitals and have undergone several operations. Their moral fiber has been weakened by prolonged strain, and they have lived a life of painful indolence for many months. To such men occupation is essential to their recovery, and the curative workshop has been to them a priceless therapeutic boon. For the initiation and organization of these workshops the nation is deeply indebted to King Manuel, assisted by the princely generosity of the British Red Cross.

These shops have a double curative value—the psychological and the mechanical. As soon as a derelict finds himself once again a productive agent he becomes transfigured. Hope replaces despair, and we find this mental reaction soon produces its physical changes. The power to order a man to work is practically never exercised, for we obtain our ends more effectively by persuasion and example. Work is, therefore, very popular, and is, in addition, accompanied by rewards and privileges.

The mechanical therapy is of two kinds—direct and indirect. A man with a stiff foot, which he is disinclined to use, may be given a job to do with his hands. In the interest which the work inspires he forgets to nurse his foot, which almost unconsciously, and often very rapidly, becomes again mobile. A knee joint which could not bear the continued strain of

* Reprinted from the *Lancet* of July 27, 1918.

working a treadle will, perhaps, improve in function quickly while the patient, forgetful of his injury, is working with a saw. This is the indirect method of attack.

The direct is invoked when we give a man with a stiff shoulder paper-hanging or white-washing in order to loosen it, or screw-driving to pronate or supinate his arm, or a plane to mobilize his wrist.

The governing principle in regard to curative work is founded on the well-grounded belief that active movements are of infinitely greater value than passive movements. Active movements by exercise in one of its various forms have a direct curative effect upon the muscular structure. Passive movements are sometimes essential in order to stretch or flex a joint in preparation for active exercise, but in war injuries movements must be supervised by an experienced mind.

Work in the gymnasium is rendered attractive by games carefully devised for definite objects. If these games are competitive they often prove most helpful to the functional element so often grafted upon the organic. Although associated regional types of disability are grouped in classes, we depend mostly upon individual attention. A good instructor has a hundred eyes, can detect and watch men with special disability, and he always knows the danger of over-exercise.

Massage and electrotherapy are governed by well-considered surgical principles both in regard to the types of graduated contractions induced in order to stimulate normal psychological action and the maintenance of uninterrupted relaxation in paresed muscles. We lay it down as a fundamental principle that muscles must not be massaged while they are under tension. In drop-wrist not for one moment is a patient allowed to palmar-flex his wrist; it must be kept dorsi-flexed while either being massaged or while undergoing electric treatment.

In all centers we have artists and modellers, and careful pictorial records are kept of the various types of deformities.

INSTRUCTION IN MILITARY ORTHOPEDIC SURGERY.

Shepherd's Bush Military Orthopedic Hospital, London, is typical of some 15 similar centers situated in large industrial centers over Great Britain and Ireland. Around each of

these centers is grouped a series of auxiliary hospitals supervised by the parent staff.

It is desired to make these institutions educational in order to disseminate orthopedic knowledge among men who will have to deal with after-war problems. Intensive instruction is being given at Shepherd's Bush, Liverpool, and Leeds, and in three months a well-trained young surgeon will have thoroughly grasped the fundamental principles.

We have been immensely indebted to the United States, who, as soon as they entered the war, sent over my friend Major Goldthwait and 23 extremely well-trained orthopedic surgeons. This was a delightful gift for the duration of the war. In addition to these, we have placed at our disposal 50 American surgeons of junior rank, who can both help us in our work and at the same time undergo a training.

Even yet—such has been the demand upon our young men—we have very few Britishers undergoing training. This is most unfortunate. A young surgeon would be so much more useful and adaptable at the front if he had undergone an intensive training in the surgery of the extremities for three months.

For educational purposes congresses are held twice a year, when the staffs from all the hospitals meet to discuss and relate experiences; while every three months visits are arranged between centers geographically convenient in order that they may link up in efficiency.

THE WORK OF THE CENTERS: RESTORATION OF PATIENTS.

The operative work done in these centers consists largely in rectifying the deformities of war—arthrodesis of joints in good functional positions when they are ankylosed in bad ones; bone-grafting and other reconstructive measures for bony deficiencies and non-union; lengthening of shortened limbs and readjustment of malunited fractures; the fixation of flail joints in good functional position; and tendon transplantation for various conditions.

We have included injuries of the peripheral nerves in our orthopedic list because they often require pre-operative, operative, and post-operative treatment, and they were the type of case which at the beginning of the war were found to be neglected owing to pressure on beds. Such cases are most carefully examined

by neurologists, who work in close conjunction with the surgeon. In this way the nerve cases are under admirable control, and we endeavor more and more to segregate the cases requiring suturing under the care of those men who do the work best. A feature of the neurological work is the success which has attended tendon transplantation in irreparable damage to the musculo-spiral and posterior interosseous nerve.

Distinguished general surgeons overlook the work of each of the centers.

There has been a very natural anxiety on the part of the War Office at the prolonged retention of men at the orthopedic centers, but when the other side of the picture is presented and it is realized that over 70 per cent. of the cases are returned to military life it is evident that the patient care devoted to them is justified. The orthopedic hospital is the only link which makes it possible for the Pensions Ministry to make a useful citizen of a disabled soldier. The regret we must all feel is that so many of the deformities which we have to rectify might be avoided were surgeons more generally instructed in mechanical principles.

More recently—to expedite the process of cure, to diminish the time of hospital treatment, and to prevent the formation of these chronic disabilities—steps have been taken to bring suitable cases from overseas to the orthopedic hospitals. They are labelled “orthopedic” and taken in convoys direct to the centers. The stay in hospital is in this way much diminished, as the facilities and equipment are such as to ensure that the best thing shall be done and at once.

SUGGESTIONS AS TO PREVENTIVE METHODS.

Another useful method of improving treatment is that of instructional propaganda. Command depots are visited monthly by orthopedic surgeons, and the doubtful cases are discussed in groups. Instructions or suggestions are sent to the various hospitals all over the country dealing with preventive methods. The following suggestions, drawn up by the consultants, may be useful as an idea of what is being done.

(a) *Gunshot injuries through joints, followed by suppuration, generally result in ankylosis.*—The positions of greatest usefulness in such conditions are:—

Shoulder.—The arm should be kept abducted to about 50°. The elbow should be slightly in front of coronal plane of body, so that when it is at right angles and the forearm supinated, the palm of the hand is towards the face. The arm is placed in this position, while the scapula retains its normal position of rest. The humerus being fixed to scapula at angle indicated, the arm can be lifted to a considerable height by scapular action.

The arm should not be kept more abducted than 50°, otherwise it may not be possible to bring it down to the side.

Under no circumstances should the joint be allowed to ankylose while the arm lies hanging down, for the functional result will be so bad as to necessitate an osteotomy later on to correct the adduction.

Elbow.—The position must always be influenced by the patient's calling, but in the majority of cases the best functional results are obtained when angle between humerus and forearm is a little greater than a right angle—about 110°. The forearm should be supinated so that the palm is directed slightly upwards. If both elbows are ankylosed one should be about 110° and the other 70°.

Wrist.—All injuries of wrist-joint should be treated with wrist slightly dorsi-flexed, with fingers spread well out (see paragraph (e) later). There should be no exception to this rule.

Hip-joint.—Ankylosis should be secured in position of slight abduction, the thigh extended and slightly rotated outwards.

Knee.—It should be fully extended, care being taken to avoid hyper-extension.

Ankle.—The foot should be kept at right angles to the leg, in a very slight varus position. A valgoid position of foot is to be specially avoided.

(b) *Gunshot injuries of joints followed by rapid healing.*—During the period of rest these joints should be kept in the same position as indicated above.

If there is no considerable damage to joint surfaces movement may be expected in many of these cases if ample time is given for recovery from inflammatory change. Any attempt at breaking-down under an anaesthetic is to be deprecated. Such joints require very careful handling.

The shoulder will serve as an instance. Without removing the shoulder abduction splints

the joint should be well massaged for a few days. If there is no reaction it is safe to remove the arm a few degrees from the splint and let it down again. If this is not followed by reaction it may be repeated every day and the patient encouraged to lift it actively from the splint. When he can do this easily the splint can be bent a few degrees (adducted) so that further movements can be practised. Massage and electric stimulation of the deltoid are indicated. The principle is one of alternative attack and rest. If reaction occurs a further rest of the joint is needed.

A similar principle applies in injuries of other joints.

(c) *Injuries involving tissues in neighborhood of joints, resulting in suppuration, deep scarring, etc.*—No attempt should be made to break down these cases under an anaesthetic.

The knee-joint will serve as an example. When by massage and other tests there is reason to expect no inflammatory reaction, graduated movement may be attempted. The knee is straight, with, say, 10° of movement; a splint is moulded allowing the joint to flex to 25° . The limb is bandaged to the splint. When the joint has yielded, so that limb lies easily on splint, it should remain in that position for recovery of strained tissues to occur. Movements are then practised by patient within range of 25° . If voluntary movement is free within that range a greater angle is given to the splint and treatment is repeated. If the joint becomes tender and stiffens in the new position it must be placed back in straight position and rested. When movement has been secured to about 45° movements may be continued in the gymnasium.

In all extra-articular lesions of the axilla and its folds, where ankylosis of the joint is not expected, the arm should be placed in the fully abducted position.

(d) *Injuries occurring at distance from joints, fractures, etc., with inflammatory changes occurring in muscles.*—No joint, not the seat of an arthritis, should ever be allowed to stiffen permanently.

In all fracture cases where it is possible to move the joint without interfering with the fixation of the fragments this movement should be practised. One gentle movement in each direction once in two days is sufficient. Passive movements which involve frequent repe-

tition of the same movement are unnecessary and often harmful.

If the joint is very stiff after prolonged immobilization, and where the bone is supposed to have united, great care is required. The bones above and below the joint should be well splinted while movement is started if necessary under full anaesthesia. Unless the joint yields readily the surgeon should be content with a few degrees of movement, the joint should be secured for a few days, and the surgeon may renew his efforts from time to time. Bones are soft for many months after a gunshot injury, and many fractures have occurred again as the result of attempting to move the joint without first protecting the bone from strain. This is especially true of fractures above the knee and near the shoulder-joint.

(c) *Stiff fingers.*—All splints for dorsi-flexion of the wrist, especially where fractures or inflammatory changes have occurred in metacarpals and phalanges, should be moulded in the position the hand takes when holding a cricket-ball.

Particular care should be taken not to over-extend the metacarpophalangeal range, as stiffening in this position is most intractable. The palmar arch should be maintained concave, the short dorsi-flexion splint should leave ample room for movement in the metacarpophalangeal range, and should be moulded to allow of abduction of thumb. At earliest possible moment active movements should be encouraged, and massage and passive movements should be gently practised. The so-called breaking-down the fingers followed by swelling from effusion retards recovery. The movements should be very gentle to be effective.

General remarks.—In all cases where the injury does not directly involve the joint, massage and active movements should be encouraged.

Even when a joint has to be fixed in consequence of a fracture in the neighborhood, early massage and electric stimulation is needed in order to prevent adhesions forming in the muscle sheaths. The patient should also be taught how to contract his muscles while the limb is splinted.

Splints should not be applied to the fingers except where they are the actual seat of fracture or active inflammation.

In all fractures of the forearm the hand should be supinated.

All splints should be removed from the upper extremity at the earliest practicable moment. As bones take a very long time to harden, the lower limbs, inasmuch as they have to bear the body-weight, should be guarded against deformity during walking. Neglect of this precaution has given rise to many cases of bowing and overlapping of the femora.

All gunshot injuries of the joints have to be treated with great gentleness, and the breaking-down of such cases under an anaesthetic is to be generally avoided. Our pre-war experiences are not applicable to gunshot injuries.

All scars about joints should be kept extended during healing unless a contra-indication exists. Care should be taken to prevent equinus at the ankle taking place during the treatment of other lesions of the limb.

As patients have to be discharged while still under treatment, it is imperative that full instructions should be given to the local Pensions Committee as to further treatment.

These instructions give the various surgeons, many of whom have not had an orthopedic training, fundamental principles upon which they can act.

ARTIFICIAL LIMBS.

All the artificial limbs in the country were made first of all at Roehampton House in London. This hospital, though not included in the orthopedic scheme, is staffed by orthopedic surgeons. It was soon found necessary to decentralize, and limbless hospitals were started in Scotland, two in Ireland, and one in Wales. Quite recently it has been decided to start fresh centers in direct connection with the orthopedic centers at Liverpool, Leeds, Manchester, and Birmingham. Three of these have already started work. They are under the joint control of the War Office and the Pensions Ministry. The patient remains in the Army until his limb is fitted.

But the curative workshops can be utilized in an invaluable way by the facility with which they can turn out *provisional limbs* of a cheap but effective pattern, by means of which the soldier can be provided with a method of locomotion as soon as he can bear his weight on the stump. He can very soon discard his crutches and move about with a stick.

A further boon has been conceded. He can go to his home on furlough with this provision-

al limb until such time as he is required to enter the "limbless" hospital for the adjustment of the permanent artificial leg.

TREATMENT AND TRAINING OF PENSIONERS.

Such are the means adopted to restore function and render the patient fit to return to the Army or to go back to civil life. If sufficiently restored, the patient may go to a Command Depot for further training, or be re-mitted direct to his unit and become again a serving soldier.

If he is so disabled as to be unfit for further service he is discharged from the Army and becomes a pensioner, coming under the supervision of the Pensions Ministry. The discharged soldier, now a pensioner, may be able to go back to his old trade, or he may find a new job in which he may be employed without further training; or he may be re-educated for another trade or craft. Arrangements are being made by means of classes in the technical schools, through private employers, or by the establishment of new institutions, in which he can get both training and treatment.

Many of the orthopedic pensioners require very prolonged treatment, necessitating close observation for a considerable time, combined with massage and electrical treatment, etc. For this purpose numerous out-patient clinics are required and set up. One paramount consideration should be kept steadily in view by the Ministry of Pensions in this connection. Any provision for the treatment of the orthopedic pensioner must be made so as to allow supervision, control, and inspection by adequately trained surgeons. Continuity of treatment is lost otherwise, and the patient, careful work of months may be undone.

Organization.—The complete organization in relation to the treatment and training of the pensioner should include: 1. An out-patient clinic, with massage and electrical installation. 2. Beds for in-patients. Both these to be inspected and supervised by specially trained surgeons. 3. Hostels. 4. Means of re-education.

Military orthopedic centers exist now in all the commands. In the Scottish Command there are three—at Aberdeen, Glasgow, and Edinburgh. At all three, and at Dundee as

well, arrangements have been, or are being made for the correlated treatment and training of the pensioner.

In the Irish Command there are two orthopedic centers—Belfast and Dublin.

In Wales the Welsh Metropolitan War Hospital, Whitchurch, near Cardiff, is the main orthopedic center. A second one is in the process of being established at Newport, Mon. Arrangements are now being made at Cardiff to coördinate the treatment of the orthopedic pensioner with the military orthopedic center at Whitchurch.

In England there are two orthopedic centers in the Northern Command—at Newcastle-on-Tyne and at Leeds. In both the pensioner is to be dealt with by association with the organization of the military centers.

In the Western Command (in which Wales is included) there are in addition centers at Liverpool and Manchester.

In the Eastern Command a military orthopedic center is being organized at the military hospital at Edmonton.

In the Southern Command centers exist at Birmingham, Netley, Oxford, Reading, and Bristol; and in the London area there are Shepherd's Bush and Tooting Military Orthopedic Hospitals.

For the orthopedic pensioner it is necessary that all schemes of treatment shall be closely allied to these military orthopedic hospitals, so as to be able to take advantage of the special equipment and departments which are found there. The pensions beds must be either at, or closely proximate to, the orthopedic center, as it is impossible to reduplicate staffs.

Many more subordinate clinics are needed, however, in towns where recognized orthopedic centers do not exist. Such institutions should be affiliated to the nearest orthopedic centers in the several commands. As each command possesses at least one military orthopedic hospital, these subordinate clinics should be set up by the Ministry of Pensions after consultation with the War Office, and be periodically inspected by skilled orthopedic surgeons.

Such arrangements must be made if continuity of treatment is to be maintained and the pensioner is to be restored to health. The staffs for the pensioners' clinics should undergo an intensive training at an orthopedic center.

CONCLUSION.

Such are the scope and aims of military orthopedic surgery. Arising out of principles adopted for the treatment of crippled children, it has expanded into a huge organization of extreme military importance—first, with the object of receiving the serving soldier and sending him back to the fighting line; and secondly, to reconstruct and restore the functions of those so badly crippled as to be useless as fighting units, but who, if properly treated, may take their places as useful workers and efficient members of organized society.

The name "orthopedic" may be open to criticism as applied to war surgery, but it is not easily replaced. It is intended to cover a type of case which requires for its treatment a combination of specially equipped hospitals manned by well-trained operative surgeons of mechanical mind who will work in team and accord with heads of special departments. They must be loyally prepared to develop the work they are most fitted for to the complete exclusion of any other branch for which they have a liking, and they must all combine in an effort to make the institution they work in an abode of inspiration and contentment for the wounded. We have the teaching staffs represented in all these centers, but the more so-called general surgeons we can rope in, the more effective will we become.

"BIRTH CONTROL".*

BY MABEL D. ORDWAY, M.D., BOSTON.

IN the first place, I object to the term "birth control," as it is meaningless and conveys a false impression. Preventive measures may prevent conception in a large percentage of cases, but no human intervention can regulate birth any more than death.

The question of the prevention of conception appears to be a subject which is in the experimental stage in regard to reliable statistics sufficient to support argument. The evidence is at present too nebulous, too inaccurate, too bipolar, the same facts being used by some as arguments for, by others against preventive

* Read before the New England Women's Medical Society, Nov. 15, 1917.

measures. The difficulty at present lies in the fact that, as our own opinions are already formed, as we start with preconceived ideas, we can draw from the variety of views support for whichever side we take. With our present knowledge, we may merely state the benefits and evils, medical, social and moral, of the various methods used; and, as only intelligent individuals are supposed to find our advice valuable, let the patients choose for themselves. Of course each physician will lay emphasis on what he believes will ultimately work out best.

All methods have the same alleged general benefit: to prevent married people having children at inconvenient times, or from having more children than they can suitably rear and educate. Moreover, there are women who are neither physically or mentally fit to have children, and who, it is claimed, should not be cut off from marriage. All methods considered are contraceptive only, for all agree that to interfere with life once begun, however early, would be criminal, and no birth-controllist would allow this, although the differentiation of prevention from interruption of pregnancy is no easy matter. In fact, it has been put forth as a benefit that proper preventive measures would lessen the number of abortions. It may be argued that the advisability of the artificial regulation of life—the prevention of potentially useful citizens, as well as the regulation of death, or length of life of hopelessly sick persons—is a purely individual problem.

Continence is the method which all agree is best, if it is possible—the only method which ultimately will bring the human race out of all its sexual problems successfully. How can we bring this method into more general use? Certainly not by laying too much emphasis on perversions, but by creating a public opinion that continence is possible and consistent with health. A large percentage of people are suggestible and are able to do what they are taught to believe they can do. In the army, a year or more ago continence was regarded as a Utopian idea, whereas today it is considered the most practical solution. Although marital continence is in many respects a very different problem, ideas in regard to it are liable to change. The medical, social and moral reforms we can effect to bring this about will be the most permanently practical plan. In reaching this end, there will be overproduction, perhaps more so-called immorality. We may seem to be

striving for the impossible, but there are now a far greater number of married people believing thus than there were generations ago; and this should be the end of which we should never lose sight. In individual cases we may have to use by-paths. As we evolve, we shall do away first with gross perversions, then with those which are so frequently used that it is often forgotten that they are perversions.

It is claimed by some that all preventive measures may cause salpingitis or permanent sterility. Admitting, however, that these may prove physically harmless in many cases, must it not be said in honesty to all people using these procedures that they may suffer psychic injuries? In conscientious, self-accusatory people, masturbation and preventive measures are very common causes of a regret which cannot be rooted out—far more common than the regret of having had too many children. Nowadays we know almost positively that the causes of certain mental troubles are chiefly psychic, and, therefore, we must be cautious about advising any sort of sexual perversion with its far-reaching, subtle power for undermining an organization, until its influence has been carefully investigated.

Nowhere could these problems be better worked out than in gynecological and obstetrical clinics. Such a study would doubtless stimulate other organizations to carry on investigations complete enough to afford evidence sufficient to support argument. A questionnaire might be filled out in all possible cases recording percentage of patients using contraceptive methods, methods used, causes of sterility other than gonorrhea and syphilis, percentage of sterile cases using preventive measures and methods used in such cases, percentage and causes of miscarriages, number of children in families using no prevention, percentage of family disruptions on account of attempted continence, efficiency of families with and without use of methods, percentage of salpingitis in women using measures of prevention and in women not using them (excluding known causes of salpingitis). Gynecologists and obstetricians will probably obtain the most valuable information, but alienists and neurologists will often come across cases where later effects are apparent and perhaps may be able to testify as to the number of cases where preventive measures play an important part from the enormous number of

cases where problems of sexual relationships form at least an exciting cause.

As to public and indiscriminate distribution of information about such important matters by non-medical people, what physician would approve of this? What need is there of it? Will not physicians in private and out-patient practice suffice to give advice? All persons acknowledge that there is a tremendous social problem involved. In these days of high ideals, self-control, self-sacrifice and discipline are the key note of life. The sexual problems, increased by the war, are overwhelming, and it is upon us, as physicians, that much of the responsibility will come in guiding in a far-sighted way. We must progress or regress. Any real improvement will be slow and will necessitate changes, some of which will threaten to modify our present social organization. Now, as perhaps never before, the gift of life cannot be regarded too seriously. However radically our views may differ, surely the good in each will be preserved, since we all desire the betterment, physical, social and moral, of the human race.

Not very many years ago a sect, neither medical nor scientific, arose to fill a psychic need neglected by the medical profession. Now again, a non-medical organization is attempting to inform the people in regard to a vital problem of a distinctly medical character. Let us not evade a question which belongs to us, because it is difficult to answer with our present knowledge, but let us place the question upon a scientific basis by accurate investigation, so that our patients may not be forced to seek advice from inaccurate lay sources.

HEARING TEST WITH VOICE TO DETECT MALINGERING.

BY CAPT. JOHN F. CALLAHAN, M.C., U.S.A., BROCKTON, MASS.

THE success of this test depends on the following law, which not only applies itself in audition, but also to other senses which we will not dwell upon in this paper. It is not a law of auditory responses alone, but applies to all responses of stimuli which follow this law. It was an observation of the ancients that the greater obscures the lesser pain, and, in a general way, all strong sensations prevent the appreciation of the weaker ones, whether they

are in terms of the same or different senses. In this paper we will confine ourselves to the application of the law as it is concerned in hearing.

Law. Stimuli which are similar in all their properties except in intensity are not disassociated by the mind, and only the stimulus which is of the greater intensity is registered in the brain so that we are conscious of it.

When a sound reaches each ear with the same intensity we are conscious of hearing it in both ears. When a sound reaches each ear with different degrees of intensity we are conscious of hearing the sound only in the ear where intensity is the greater. It is easily demonstrated that we are conscious of hearing a sound only in the ear that receives the most intense vibration. In any ear test where two sounds, one of which goes to each ear, but come from different sources, rarely, if ever, can these two sounds have the same pitch, timbre or intensity.

Tests using the human voice which depend on the patient not knowing in which ear he really hears the voice are an insult to the intelligence of the suspected malingerer, and whether one or two voices are used in such a test the patient may, by concentrating his attention to his good ear, suppress what he hears in his supposedly deaf ear. The most we could expect would be to trick a patient whose mental aptitude was not very sharp, and even then all we could find out would be that he was not totally deaf in that ear, but not the extent of hearing that he had.* The same result is easily obtained with my tuning-fork test, which consists of 4 to 8 feet of rubber tubing connected with two funnels which are placed opposite each ear and the vibrating tuning fork applied to the tube. This entire apparatus costs about 75 cents and requires no technic in assembling it.

We know that in the human voice we have the richest and most agreeable monotone musical instrument in existence, but by reason of its timbre and inflection we have the means of recognizing the fact when there are two or more voices, even though the pitch and intensity are the same.

In our ear tests we must eliminate all noise-producing instruments, as we deal only with sounds. Sounds have characteristics,—loudness, pitch and timbre,—and are the result of

* BOSTON MEDICAL AND SURGICAL JOURNAL, AUG. 15, 1918.

regular vibrations which follow a law. Noise, on the contrary, is a mixture of sounds collected together under no law, or under some law so complicated that the ear neither understands nor feels it.

Our tests, therefore, deal only with sound which must have for its source a single instrument; in this we can make no error.

The only practical test of hearing is the ability of the individual to hear conversation. The most practical use that the human ear has is to conduct to the mind messages from the human voice.

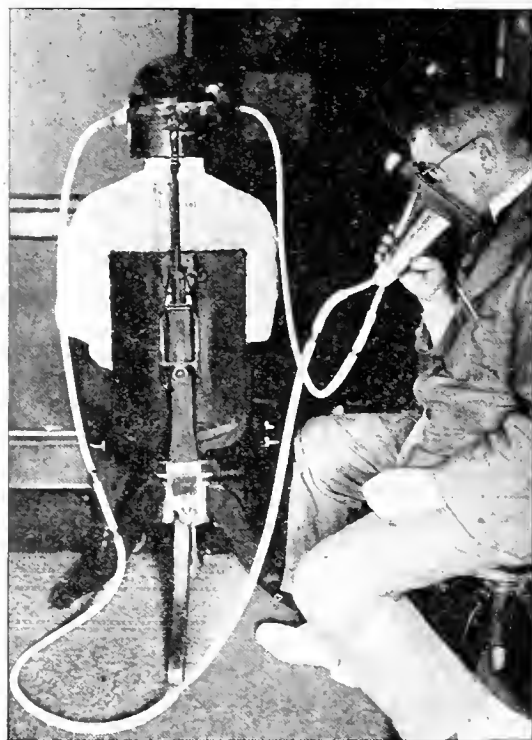
Tuning forks, watches and vibrating acoumeters have a field of their own in testing the auditory apparatus, but they lose all their value when we wish to test the amount of hearing, as the only practical test of hearing is the ability to hear conversation. Therefore, no matter what mechanical apparatus may be used in estimating the power of audition, no test is complete which fails to have as part of its system a means of measuring the distances at which vocal sounds are received. It does not seem fair to conclude that we know that a patient has two-thirds of hearing just because he could hear a vibrator at a certain distance. The hearing of a watch, vibrator or a tuning fork is no indication whatever of the hearing of conversation or whisper, and in the latter the pitch and intensity are fairly constant if care is taken in every examination that the whisper be as loud as possible and produced only by the residual air.

If we did not wish to use the human voice in this test we could use a phonograph, and then we would have as near as possible something that would have a standard value, where the intensity would be the same in testing different individuals.

Apparatus used in this test consists of rubber tubing, $\frac{3}{8}$ inch hole, a $\frac{3}{32}$ inch wall (any size may be used). The distance that the patient can hear whispered voice through this tubing with the good ear is measured. I usually use a tube going to the good ear that is about two or three feet shorter than the greatest distance that he can hear whispered voice through this tube.

The length of tubing to the deaf ear should be about 2 or 3 feet to start with, and we are able with simple metal couplings to keep adding more tubing as the case requires.

To the ends of the tubing that are applied



near the patient's ears I attach aluminum funnels. To the distal end of both tubes is attached what was once an ether cone, which has been covered at one end with tin. Two tubular extensions are fitted in this end and the rubber tubing is connected to these. The other end of the ether cone is placed over the mouth and nose of the examiner, so that it fits closely to the face.

The Application of the Test in a Patient with Both Ears Normal. With the same length of tubing connected to each ear and to the mouthpiece the voice whisper or conversation is heard in both ears. If we used a 20-foot tubing going to one ear and a tubing 4 inches shorter going to the other ear, the patient is conscious of hearing the voice in the ear that is connected with the mouthpiece by the short tube. If we take two tubes of the same size, one 4 feet long and the other 3 inches shorter, he can hear only in the ear that is connected with the short tube, which is 3 feet, 9 inches, and is unable to hear in the ear that is connected with the tubing that is 4 feet long, although either ear can hear the same whisper in this tube at 20 feet. This latter test easily demonstrates the law of impulses and how they are registered in the brain when we apply that law to the sense of hearing.

Test No. 2. Patient claimed that the hearing in his right ear was perfect but that he could not hear anything in his left ear.

He heard whispered voice at 8 feet from good (R.) ear), and in all tests he claimed he could not hear anything in left ear. In good ear he could hear whisper through a 15-foot tube. With a 13-foot tubing connected with face-piece and funnel going to good ear, and a 2-foot tubing likewise connected to funnel going to left (deaf) ear, he claimed he could not hear anything; he had previously heard the same whisper through a longer tube going to good ear. The reason that he said that he now could not hear the whispered voice was because he was hearing it in his left bad ear. I then increased the length of tubing going to his bad ear from 2 feet to a 4-foot tubing, through which he still claimed that he heard nothing. He refused to admit that he could hear the whispered voice until we had a 12-foot tubing attached to funnel going to left (bad) ear. The length used previous to the 12-foot was a 9-foot tubing. He, therefore, must have heard in his left ear at 9 feet through the tubing, as he only admitted hearing when he heard it in his good ear, and he could only hear it in his good ear when heard the loudest, and he heard it in his left (bad) ear at 9 feet because he heard it loudest in that ear. This is according to the law when applied to hearing. For example: When a sound reaches each ear with different degrees of intensity we are conscious of hearing the sound only in the ear where the intensity is the greater or where the sound is louder.

Suppose that when he had a 2-foot tube attached to bad ear and a 13-foot tube attached to good ear and patient claimed that he heard the whisper. We would then be unable to say which ear he heard it in. All we would have to do would be to uncouple one or the other tube, and after a few tries we could find out whether he was telling the truth or not. If he is really deaf in bad ear he will always admit hearing through the tube, as the tube going to good ear is always inside the hearing limits of his good ear. But when he hears it in his bad ear of course he will deny hearing anything—which means that we have caught him. The tubing can be increased in length by metal couplings, which fit snugly inside the tubing.

We can also try conversation voice through

tube that we tested the whispered voice, as the result would be just the same in that he will only hear in the ear that he hears it the loudest.

TREATMENT OF SYMPTOMS AND COMPLICATIONS IN TUBERCULOSIS.

BY HERBERT F. GAMMONS, M.D., DEERWOOD, MINN.

WE are often called upon to treat the symptoms in the tuberculous and too often treat the symptoms to the utter disregard of the disease process itself. It has been the custom to prescribe certain remedies for these conditions which are only palliative and which, while relieving the symptoms, tend to mask the disease process itself, thereby increasing the activity of this process.

The old idea of cod-liver oil and whiskey was much more effective than some of the present-day treatments if they had only at the same time used natural processes of rest, fresh air, etc., in conjunction with the cod-liver oil.

The use of opiates to mask the cough, instead of treating the disease process *per se*, is greatly to be deplored in many cases, as well as the use of aspirin in fever and strychnia in the person who is weak and cannot work. We realize now that rest, as a rule, will stop the cough, decrease the fever and conserve and build up the energy as well as remove the toxemia by decreasing the inflammation in the affected areas and promoting fibrosis.

Creosote was formerly thought to be a specific in the tuberculous cases, and it is very surprising how much creosote is still being given to the tuberculous and in what large doses. It is just as reasonable to give tuberculin in large doses in the cases in which creosote is given, for the reason that the physiological result of each remedy is a sloughing off of diseased tissue.

•As a rule, the tuberculous patient wants to be taking some medicine, and nothing pleases most of these patients more than a large bottle of bitter tonic. However, there are some cases with an impoverished blood that have made remarkable improvement in color and general feeling as a result of the use of hypodermic iron.

About ninety per cent. of the cough in tuberculosis is not necessary, and patients can be educated to stop a large amount of their cough-

ing and at the same time be instructed to cough properly, that is, by first emptying their lungs and then coughing at the end of expiration. Usually a patient will first fill the lungs with air and then cough at the end of inspiration, thereby producing a very severe strain on the lungs and not relieving the irritation.

If a patient has an incessant cough that is not due to a throat irritation that can be remedied, and the cough is not productive, it is necessary to give some very mild sedative occasionally until the physiological effect of rest has caused a cessation of the cough. The type of cough which is productive after much effort needs some so-called expectorant, and the ammonium salts give good results in this case. The type of cough with profuse expectoration needs some medicine at times to decrease the sputum and at the same time relieve the cough, and the elixir of heroin and terpin hydrate is very useful in this type as the terpin hydrate tends to decrease the sputum without increasing the inflammation.

Hemorrhage in the tuberculous is a symptom that oftentimes is as alarming to the physician as to the patient. It is necessary to recall the conditions producing hemorrhage in order to treat them successfully and intelligently. There is the hemorrhage due to ulceration of the side of a vessel which is of greater or lesser size, and the hemorrhage corresponds with the size of the rupture and also with the size of the vessel. Rest in bed will generally stop this type of hemorrhage, but it may be necessary to give some sedative to allay the cough and nervousness. The so-called toxic bleeding, where there are a few bright streaks, needs only rest in bed. The profuse hemorrhage in cases where there are ruptures of aneurysms in cavities, usually are not amenable to treatment because the patient is asphyxiated in a very short time. There is another type of bleeding where a cavity is gradually and slowly filled with blood from proliferated vessels which have ulcerated, and this type needs only rest in bed, as a rule. If there is a persistent bleeding with a large loss of blood, artificial pneumothorax must be resorted to and promises excellent results where there is a free pleural cavity. It is well to give a dose of magnesium sulphate to increase the coagulability of the blood, but the value of calcium salts is questionable as is also the use of remedies to reduce blood pressure.

Pain in the chest is a troublesome symptom

at times, but it is often relieved by counter-irritants such as the hot water bag, and, in those cases where there is an adhesive pleurisy with the sharp knife-like pain, the adhesive plaster applied to immobilize the affected side gives immediate results. Lying on the affected side will often relieve pain due to rubbing together of dry, inflamed pleurae.

Spontaneous pneumothorax should only be treated by the specialist and almost always by withdrawal of air at intervals. Pyothorax and pleural effusions also need surgical treatment, as a rule.

Gastro-intestinal disturbances often frighten the patient into believing that he has a tuberculous bowel, but a few days on a very light diet will serve to relieve the acute cases, while with the chronic dyspeptic it is necessary to add some permanent change in the diet and also give some digestant, according to the needs of the case.

Laryngeal infections need, first, rest and then treatment by an expert on laryngeal tuberculosis. Oftentimes the tuberculous larynxes have been over-treated, so that nature has been interfered with in relieving the inflammation and growing epithelium. I believe that the use of argyrol in a ten per cent. solution is the safest treatment for most of these inflammations without ulceration and the formalin in a two per cent. solution where there are abrasions.

The use of natural laxatives, such as bran and the mineral oils and dried fruits, should be strongly encouraged. If sanatoria would figure up how much is spent for unnecessary cathartics in a year the results would be astounding, I am sure.

There is one remedy that I believe is not used as much as it should be, and that is some nerve sedative to overcome the abnormal stimulation of the toxins and allow the patient to get more rest. It is very striking when we compare the results of the use of a few doses of bromides on these cases who are absorbing tuberculin into a system where the nerves have already been over-stimulated by impulses.

The physician who will use just as little medicine as possible, and as much encouragement as possible, with good, sound advice regarding the use of prolonged rest, food and fresh air, will get the best results. A little explanation to the patient regarding the course of the disease and how one is almost always sure of improving if one does as one is told will

invariably have a wonderful psychological and also a physiological effect that cannot be procured from medicine. It is, however, necessary to give some medicine to allay symptoms in some cases while at the same time nature is being assisted in all ways possible.

Clinical Department.

TETANUS WITH INCOMPLETE TRISMUS; RECOVERY WITH SERUM.

BY ROBERT W. ANGEVINE, M.D., ROCHESTER, N. Y.,
First Lieutenant, M.R.C., U. S. Army.

[From the Medical Service of the Rochester General Hospital.]

A CASE of classical tetanus in a child of five years was recently observed and successfully treated in the wards of the hospital, the entire course of the disease lasting twelve days. The case was marked by general rather than local manifestations and even the trismus, so characteristic of the disease, was incomplete although definitely present. The case was one of insidious onset, without prophylactic treatment and with an incubation period of five days.

A male child of five years was admitted to the Children's Pavilion of the hospital in a semistuporous condition. Relatives gave a history of gradual development of stiffness of the limbs, accompanied by paroxysmal attacks of excruciating pain in the muscles. According to the ward records, the child fell down eight stairs six days before entrance to the hospital. He got up, cried, and after a time was again able to play. He had received a small lacerated area on the left arm, anterior surface, near the elbow. The child did not sleep well that night and two days after the accident was taken with convulsions and was seen in spells in which he would become rigid, cry shrilly, and, on partial recovery, complain of severe pain in the limbs. He developed a temperature of 101°, and intense sweating was noted. Chills were frequent.

The attending physician administered narcotics to relieve the muscular spasm and ordered a warm bath to be given twice a day. The physician stated that the limbs could be flexed only on employment of a fair amount of force. Muscle spasms were frequent and slight stiffness of the back was noted. Contractures of groups of muscles were present although not

marked. Subjectively, the patient was very irritable, cried spasmodically and in a shrill voice. The pain was described as of a shooting type and referred chiefly to the left arm and muscles of the pectoral region of that side. Later the physician noted that symptoms were becoming more intense and sent the case to the ward of the hospital.

On entrance, the signs were more marked in severity; they had become more generalized and orthotonus had come on. The muscles of the neck and back were markedly contracted and the child would cry out with pain when effort was made to bend the back. During the spasms the feet were hyperextended. The abdominal muscles were contracted. Trismus now developed, but was incomplete and the mouth could be opened far enough when necessary during the entire course of the disease to allow the insertion of a swab. The mouth could not be opened sufficiently to allow examination of the throat, and made the taking of a throat culture difficult. The patient was able to drink milk during the period of sickness. Dysphagia was not present at any time. Chills were frequent and sweating marked. It was noticeable that the relaxations between paroxysms of pain were not complete. Spasms were brought about by slight tactile stimulation.

On examination the child was unable to sit up. The skin was moist and dermatographia was evident. Superficial reflexes were exaggerated. No Kernig or Babinski was elicited. Sensibility, tactile and thermal, was normal. The tongue had been bitten. The lesion on the arm was slightly raised, due to crust formation; measured approximately 1 cm. in width, and was surrounded by a zone of redness and swelling.

Pulse, temperature and respiration, on admission, were recorded as 110, 101.2, and 35, respectively. Fluid, taken by lumbar puncture on the second day of hospital care, was reported normal as to pleocytosis and globulin and with a negative Wassermann and colloidal gold curve. The culture taken from the left side of the tongue and left tonsillar recess gave a few fungus threads, a diplococcus, and a small spored oidium-albicans. The urine was reported as negative and the white count and red corpuscle examination revealed nothing of note.

On admission to the ward, the patient was given a sponge bath at 85°. Sodium bromide, in ten-grain doses, was given every four hours. Catharsis was ordered. The mouth was swabbed

out with Seiler's solution every two hours. Liquids constituted the diet. On the first day the wound in the skin of the arm was deeply cauterized with nitric acid.

According to Leishman and Smallman,* the injections of serum have the following order of merit: intramuscular, subcutaneous, intrathecal, and intravenous. After the development of symptoms, according to the report, the cutaneous method alone is insufficient and a combination is indicated. In this case no local injection of antitoxin into the muscles about the wound was attempted as clinical signs indicated absorption by the nervous system. On the first day, 10,000 units of anti-tetanic serum were injected both intraspinal and intravenously, and 20,000 units were given intramuscularly. The temperature rose 3.5° in the eight hours following these injections. It fell 1° in the next period of eight hours. The second administration of 20,000 units intramuscularly on the next day was followed by a rise of 1° , bringing the figure to 103.6° . Lumbar puncture was accompanied by a convulsion lasting about one minute. Magnesium sulphate was given subcutaneously on the second day, 2 cc. of a 25% solution being injected every six hours. The report for this day stated that the patient slept in short periods, but would wake, "stiffen out, with thumbs clenched in the fingers" and would then grasp the left arm with the right hand, evidently indicating somewhat greater localization of the spasms to the left side.

On the third day 20,000 units were given intramuscularly and a like amount intravenously. Morphia was necessary to quiet the patient. Digitalis was given in subcutaneous dosage, as the pulse had risen to 160 and was weak and irregular. A warm sponge was also given to combat restlessness. On the following days, amounts of 40,000, 20,000, 10,000 and 10,000 units of antitoxin, respectively, were given intramuscularly. The temperature read normal eight hours after the last injection.

During the brief illness the child lost considerable weight and was very weak. He remained in the hospital for a short period after active treatment was discontinued and was discharged well to a convalescent home 12 days after admission to the hospital.

NON-SURGICAL CURE OF INCOMPETENCE OF THE ILEO-CECAL VALVE.

BY JOHN BRYANT, M.D., BOSTON.

FAULTY medical instruction is responsible for the fact that many medical men do not care if the ileo-cecal valve be competent or not. Roentgenologists of experience, as Case and Cole, know that this point of view is wrong, and that incompetence is in and of itself a cause of symptoms. Granting the undesirability of incompetence, however, what is to be done about it?

Kellog's surgical treatment leaves something to be desired. On the other hand, Case has declared that he has never seen a valve become competent under non-surgical treatment. A few persons will be found who argue on what they call a common-sense point of view, that it must occasionally happen that a valve will yield under excessive strain and return to normal when the strain is removed; these persons are undoubtedly correct, but they have lacked proof.

It is important to supply proof of the possibility of non-surgical restoration of the valve to competence, if pessimism and continued lack of interest in the subject are to be avoided; and since one positive case is worth many negatives, this second note on such a positive case is presented, particularly as Case, in a personal communication, questioned the accuracy of the earlier note.

Mr. S., aged 64, was first given a roentgenologic examination on October 7, 1915. At this time, as noted by three observers, Dr. Dodd, Dr. Morrison and myself, barium flowed back through the valve before the enema had half filled the cecum.

On April 1, 1916, Mr. S. was examined again by the same three observers. At this time it was impossible by firm pressure to force any of the enema back through the valve, even after the cecum had been filled for some time. There was no room for doubt concerning the competence of the valve. This change was accompanied by a marked improvement in the general physical and in the local intestinal condition of the patient—not to mention an improvement in posture and a loss of some thirty pounds of excess weight.

On October 19, 1917, Mr. S. was given a third examination by Dr. Morrison and myself, with the following result: "A barium

* Sir William B. Leishman and A. B. Smallman, *Lancet*, 1, 1917, p. 131.

enema passed readily over to the cecum; the cecum is slightly dilated, but the valve is competent and the colon seems to be of good tone." As in April, after the cecum had completely filled, an attempt was made to force barium back through the valve, but without result. Mr. S. still has cardio-renal disturbances, but digestive symptoms remain at a minimum except when provoked by excessive bodily fatigue. His weight continues at about 170, instead of 205 pounds.

CONCLUSION.

Proof is presented that an incompetent ileocecal valve may become competent under medical treatment. This is, at least, a step in advance of pure pessimism, for a patient with this condition may be assured that non-surgical restoration to normal is certainly possible, that it is a definite object for which to strive, and that it is one worth attaining, since it will yield results in the form of increased health.

Book Reviews.

General Principles of Therapeutics. By FRANCIS H. MCCRUDDEN, S.B., M.D., Boston: Gregory. 1917.

This volume is an elementary text-book dealing with the general principles of therapeutics. It is intended as a supplement to practical clinical work and aims to develop scientific habits of thought rather than to offer a mere accumulation of details. The principles laid down are determined by usefulness and elasticity. Therapeutics is based on a sound biological basis; its purpose is to adapt the patient to his environment and the environment to the patient.

In this book, various methods of treatment are considered: the preventive, the direct, and the indirect treatment. Therapeutics is discussed as a branch of applied physiology; the functions of the organs are briefly reviewed; then are considered the nature of the disturbances of function brought about by disease, methods of influencing those disturbances, and chemical forms of disease. A comparison, from the standpoint of therapeutic usefulness, shows that the physiological, rather than the anatomical, is the correct point of view.

The Dream Problem. By DR. A. E. MAEDER. Translated by DR. FRANK M. HALLOCK AND

DR. SMITH ELY JELLIFFE. Nervous and Mental Disease Monograph Series, No. 22. 8vo. pp. 43. New York: Nervous and Mental Disease Publishing Company. 1916.

This brochure is a short study consisting of the analysis of a few dreams, and advancing the views chiefly of the Zurich school and the followers of Jung. Like his colleague, Dr. Maeder pays much more attention to the manifest content of the dream than do the followers of Freud, and, while accepting much of the sexual symbolism of these writers, sees in the dream not so much a wish-fulfilling fantasy, as a mental conflict between the interest impulse and the intellectual motive. The article is clearly written, and will well repay careful study, while the views of this writer, which are those of the followers of Jung, seem much more likely to be of permanent value, both in psychology and in medicine, than those of earlier writers.

The Significance of Psychoanalysis for the Mental Sciences. By DR. OTTO RANK AND DR. HANNS SACHS. Authorized translation by DR. CHARLES R. PAYNE. Nervous and Mental Disease Monograph Series, No. 23. 8vo. pp. 127. New York: Nervous and Mental Disease Publishing Company. 1916.

Freud's theories of the permanent retention in the unconscious of complexes to which are attached certain feeling tones are shared by many students of psychology, and we may say are fairly generally accepted. His theory, however, of how this happens, and especially of a "censor" which has much to do with the repression of these complexes, is much more doubtful. Granted this "censor" however, and there is much to be said in favor of the explanation of the origin of psychoneuroses from these factors. In this book the authors accept these theories and follow out their ideas of the methods of action of the unconscious, and of repression of ideas and wishes, and their reaction is shown in various fields of thought.

They take up first the general explanation of these theories of the unconscious, and then the effects of these unconscious complexes as shown in myths and legends, in religion, in ethnology, in esthetics and the psychology of artists, in relation to philosophy, ethics and law, and finally in pedagogy and characterology. While exception can and should be taken to forcing one theory of action of the unconscious too far in manifold fields of thought, the explanations given of many common phenomena of life and thought and prejudices give new aspects and significance to many things when studied from the point of view of these writers, and the book more than repays careful study.

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THE EPIDEMIC OF INFLUENZA.

THE regrettable appearance of so-called "Spanish influenza" in Boston and its vicinity was noted in the last issue of the *Journal*. Unfortunately, the number of cases has increased, and the epidemic has now reached important proportions. Although every possible precaution has been taken, the disease has been spreading, especially in Navy cantonments. Furthermore, it has reached the civilian population and has invaded the schools, although not yet to any serious extent.

The most serious aspect of the situation is being confronted by the Navy officials. Up to the present writing, there have been 34 deaths and 1705 cases among naval men. The wards of the various local hospitals have become filled, and the authorities have found it necessary to utilize Galloup's Island, in Boston Harbor, as a station for sailors quarantined because of this disease.

Dr. William C. Woodward, Boston Health

Commissioner, has issued a statement saying that the first thing now, as always, is to take every precaution to keep in good physical condition. At the first signs of approach of a common cold, or the grippe, isolation should be resorted to and remedies that have been found effective in previous cases applied. Avoidance of crowded cars, elevators, or buildings, and of common drinking cups and towels, is recommended.

There have been many cases and several deaths among nurses at both the Boston City and Massachusetts General Hospitals.

Since August 28, there have been sixty cases of pneumonia following grippe among sailors at Commonwealth Pier. There are comparatively few cases of the disease at the Harvard Radio School, which accommodates approximately 5000 men. Captain John M. Edgar, medical director for this Naval District, has announced that there have been 1109 cases reported in the district since August 28.

Thirty sailors from the merchant marine at East Boston have been taken to the William A. Brooks Camp, at Corey Hill, Brookline. This makes a total of more than one hundred cases of influenza in the hospitals. Several of the patients have developed pneumonia. Twelve men from the Sanitary Corps of the Tenth Regiment, State Guard, were called out and are assisting the nurses and physicians. The Red Cross has given valuable assistance.

A report from Newport, R. I., states that on account of the epidemic of Spanish influenza the naval torpedo station has been placed under quarantine. A number of men have been removed to the naval hospital, including Commander Hamilton Glover, U.S.N., executive officer of the station. The quarantine order reads as follows:

"Men will be seated not less than three feet apart. Where folding benches are used, only every other seat will be occupied.

"Coughing in all enclosed places will not be tolerated. At Barracks B drill hall, Y.M.C.A. hut, K. of C. hut, and any other places where lectures and entertainments may be held, the provost marshal will detail sentries to curb the 'coughing habit,' which has become very noticeable at all gatherings.

"It must be remembered that coughing is the means whereby contagious diseases are most effectually spread and men are enjoined to bear this fact in mind whenever they are in enclosed places in company with other men.

Coöperation on the part of every individual at this training station in the simple rule of 'Stop That Coughing' will prevent the inception and spread of disease.

"When you want to cough, go out into the open air and do it, and then see the doctor."

Navy officials have expressed the hope that relatives of sailors will not become unduly alarmed, since the Navy has adequate medical forces and hospital room to give the best attention to every case.

Officers of the First Naval District have decided to take over the muster field at Framingham as a temporary camp, technically to be an annex to the receiving ship, where 2700 naval reservists from the Commonwealth Pier may be quarantined until all danger from the malady has been removed. It will not be a camp for the reception of sick soldiers.

The naval officers, medical department, state quartermaster's department and the engineers have agreed that the site is most desirable for the purpose, and have stated that all that is now needed to complete the enterprise is the formal agreement of the Navy Department officers at Washington. Equipment is being sent to Framingham, and it is expected that the grounds will be ready for occupancy in about a week.

The medical officers of the First Naval District have been considering a number of possible sites for such a camp—a place not too far from the pier, receiving ship, Hingham, Bumpkin Island, Technology and the radio schools might be afforded fresh air, seclusion and training until the cold weather comes, by which time the naval physicians expect to have ended the influenza cases. The fact that everything necessary to sanitation is already installed at Framingham influenced the officers to that choice.

Plans already have been made for the installing and boarding up of the tents, the provision of stoves and other equipment to make comfortable the 2700 or 3000 men who will camp there until perhaps the middle of November.

There have been 118 patients at the William A. Brooks camp on Corey Hill, Brookline. This camp is now well organized. The rapidity with which it was put together was due to the fact that Governor McCall and the Council had the foresight to make arrangements for portable houses, beds and bedding, and such

other material as would be necessary for the establishment of an emergency hospital. The hospital equipment which this camp is now using was originally purchased for an emergency hospital in Commonwealth Armory, which the Governor and Council thought might be needed, but which the Government failed to accept.

Captain John M. Edgar, medical officer in charge of the First Naval District, is satisfied that the doctors at the various local stations have checked the malady. He says that by segregation both he and the other doctors hope to stamp out the illness entirely in a few weeks.

Of the 13 naval stations nearby, the training camp at Hingham is the only one so far not to be reached by the disease. No explanation for this is given. The receiving ship at Commonwealth pier still holds the lead, with 569 cases. The largest increase has been at the radio school in Cambridge, where there has been a total of 428 cases.

The following list has been published by Captain Edgar:

STATIONS	SEPT. 13		TOTAL TO DATE	
	Influenza	Deaths	Influenza	Deaths
Naval Training Camp, Hingham ..	..	..	..	..
Naval Training Camp, Bumpkin Island	14	..	235	..
Rifle Range, Wakefield	13	..	105	..
Radio School	102	..	530	..
Boston Section	3	..	25	..
Cadet School	2	..	9	..
Receiving Ship at Boston	30	..	599	..
Naval Detention Training Camp, Deer Island	5	..	21	..
Little Building	8	..	21	..
Boston Navy Yard	1	..	16	..
Ammunition Depot, Hingham, Mass. ....	..	..	13	..
Fore River	6	..	28	..
Aviation Detachment, Cambridge ..	28	..	104	..
Chelsea Hospital .....	..	2	..	34
TOTALS	212	2	1706	34

The prevalence of Spanish influenza, so called, has not reached alarming proportions among the civilian population, but the situation is serious enough to demand every possible precaution. Several deaths have occurred, chiefly from pneumonia resulting from influenza. It is to be regretted that schools have been invaded by the disease, for it will probably spread, although everything is being done to check its progress. A number of children have been sent to their homes and ordered to.

remain in bed for three or four days until a proper diagnosis has been made. Most of these cases are from the Mather School in the Meeting House Hill section of. Dorchester.

There are six incipient cases of influenza at Charles Street Jail.

All precautions are being taken to prevent the spread of the disease among the prisoners. In order to keep the prisoners healthy, Sheriff Keliher has introduced recreation periods outdoors forenoon and afternoon. For an hour at a time the prisoners play handball, baseball, quoits, and other games in the yard.

There have been 52 cases of influenza in Holbrook and one hundred cases in Quincy, Mass.

Surgeon-General Blue of the Public Health Service has made a telegraphic survey to determine the extent of so-called Spanish influenza in the United States. He has found that there was an outbreak at Fort Morgan, near Mobile, Alabama, in August, and at about the same time a tramp steamer arrived at Newport News with almost the entire crew prostrated. Cases have also been reported from Philadelphia and New York. The Boston outbreak was reported September 11; since then the epidemic has appeared at New London. New Orleans has not wholly escaped.

In New York, a rigid quarantine has been established. Dr. Copeland, City Health Commissioner, believes that the symptoms include jointaches, backaches, gastritis and nasal discharges, and that the germ is carried in the nasal and mouth secretions. He has issued the following advice:

"Avoid crowded places and poorly ventilated places.

"Keep as far as possible from sneezers and persons with coughs.

"Avoid use of public and all unsanitary drinking cups.

"Persons with colds should sneeze or cough only into handkerchiefs, to protect their neighbors.

"Persons who actually contract Spanish influenza should immediately go to bed and remain quiet. Disease will normally run its course in three days. So far, there is no known cure for it."

Reports from Europe during the past few months cite extensive epidemic prevalence of a disease resembling influenza. Many thousands of cases are said to have occurred in Spain attacking nearly one-third of the population, and in Germany and England. On this side of the water, Cuba was visited during June last

by a similar epidemic, which affected one-quarter of the population of Havana, but not a single death resulted. In Spain, however, about 700 deaths are said to have been caused by the outbreak.

In a recent issue of the *Lancet*, the following item, by Professor R. Staehelin of Basle, Switzerland, has been published. Professor Staehelin points out that little is really known of the actual death-rate from the present epidemic of influenza in Switzerland in spite of the alarmist returns in the press, inasmuch as the total number of cases is merely a matter of conjecture. Professor Staehelin is reported to have said:

"We saw no effect from salvarsan, and only fleeting fall of temperature from optochin. Electrargol occasionally gave rise to rigor with resulting fall of temperature and definite improvement of general condition, but for the most part of transient nature. Subjectively, anti-pyretics worked best (of these quinine showed no specially favorable effect), and in particular salicyl preparations, sweating being succeeded by a fall in the fever and increased comfort for several hours. In pneumonia camphor in large doses was the only effective remedy, with, of course, venesection where indicated. We should welcome any suggestions from colleagues of a more effective remedy."

Surgeon-General Blue of the Public Health Service has recently published the following information, which is helpful both in determining and in treating cases of so-called Spanish influenza:

"People are taken ill on the streets, or while at work. First there is a chill, then fever with temperature from 101 to 103, headache, backache, reddening and running of the eyes, pains and aches all over the body and general prostration. Persons so attacked should go to their homes at once, get into bed without delay, and immediately call a physician.

"Treatment under direction of the physician is simple, but important, consisting principally of rest in bed, fresh air, abundant food, with Dover's powder for the relief of pain. Every case with fever should be regarded as serious and kept in bed at least until temperature becomes normal. Convalescence requires careful management to avoid serious complications, such as bronchial pneumonia, which not infrequently may have fatal termination. During the present outbreak in foreign countries the salts of quinine and aspirin have been most generally used during the acute attack, the aspirin apparently with much success in the relief of symptoms."

Dr. Blue is issuing a special bulletin on the disease for all medical men who send for it. In

order to reach physicians of the country without delay, however, Dr. Blue has provided for transmission through the Associated Press the following summary of methods for control of the disease:

"Infectious Agent—The bacillus influenzae of Pfeiffer.

"Sources of Infection—The secretions from the nose, throat and respiratory passages of cases or of carriers.

"Incubation Period—One to four days—generally two.

"Mode of Transmission—By direct contact or indirect contact through the use of handkerchiefs, common use of wells, cups, mess gear or other objects contaminated with fresh secretions. Droplet infection plays an important part.

"Period of Communicability—As long as the person harbors the causative organism in the respiratory tract.

"Methods of Control—(a) The infected individual and his environment.

"Recognition of the Disease—By clinical manifestations and bacteriological findings.

"Isolation—Bed isolation of infected individuals during the course of the disease. Screens between beds are to be recommended.

"Immunization—Vaccines are used with only partial success.

"Quarantine—None; impracticable.

"Concurrent Disinfection—The discharges from the mouth, throat, nose and other respiratory passages.

"Terminal Disinfection—Thorough cleansing, airing and sunning. The causative organism is short lived outside of the host.

"(b) General Measures—The attendant of the case should wear a gauze mask. During epidemics persons should avoid crowded assemblages, street cars and the like. Education as regards the danger of promiscuous coughing and spitting. Patients, because of the tendency to the development of broncho-pneumonia, should be treated in well-ventilated, warm rooms.

"The present outbreak of influenza may be controlled to more or less extent only by intelligent action on the part of the public."

The latest reports on September 17 present a situation on the whole not encouraging. Greater Boston hospital authorities and physicians generally are of the opinion that nothing can be gained by denying that the grippe epidemic, which has already caused 47 deaths out of 2273 cases in the 1st Naval District alone, is making great headway, and that the public should be warned of the need of more intelligent coöperation to prevent its spread before conditions become alarming.

With nearly 200 cases to handle, all City

Hospital physicians, nurses, attendants, and employees have been ordered to wear masks to minimize the danger of infection. Since early last week a number of physicians are reported to have suffered more or less from the contagion.

Since September 15, there have been 10 deaths at the Chelsea Naval Hospital, and at the aviation school in Cambridge 81 cases were reported on September 16, thus bringing the total up to 221. Commonwealth Pier reported 28 cases on September 16, as compared with 23 on September 15 and 27 on September 14, and 11 cases developed at the Highland Training School, which was free from it up to September 16.

At the Radio School in Cambridge conditions seem to have improved, and it is expected that the school will be reopened within a few days. Fewer cases have been reported recently and it is expected that the number of cases will become gradually lower.

Hospital authorities say that the rapid recoveries are due to unusual sanitary precautions and preventive measures. No deaths have occurred at the Winthrop Hall Hospital. Owing to the need for more spacious quarters, the Radio School authorities have taken over Lawrence Hall, adjoining Winthrop Hall, in order more adequately to care for the patients.

Rear Admiral Spencer S. Wood's tabulated report says the cases in the 1st Naval District thus far are distributed as follows: Hingham training camp, 11; Bumkin Island training camp, 258; Wakefield rifle range, 171; Radio School, 692; Boston section, 58; Cadet School, 17; receiving ship in Boston, 677; Deer Island training camp, 40; Little Building, 36; Boston Navy Yard, 36; Hingham ammunition depot, 16; Fore River, 39; Cambridge aviation detachment, 221; Naval Prison, Portsmouth, 59.

Other new cases reported on September 16 include 10 at both the Navy Yard and the headquarters in the Little Building, 11 at Fore River, 36 at Wakefield rifle range, 59 at the Naval Prison in Portsmouth, 33 at Commonwealth Armory, and 2 at Army headquarters on Chauncey street. 22 deaths of pneumonia and 10 of influenza were reported among the civilians of Boston between September 14 and 16, but Health Commissioner W. C. Woodward believes that the situation has not become serious enough to close the public schools.

Three deaths were reported in Quincy and 1 each in Marlboro, Reading and Concord. In Newport, R. I., there were fewer cases of so-called Spanish influenza at the Naval Station on September 17 than on any day for a week past; this condition is attributed to the strict quarantine and to the effective manner in which the Naval surgeons are caring for the trouble. Quarantine of the enlisted men at the Naval Torpedo Station has been lifted and the 2d Naval Reserve Training Barracks, camped at Oakland Farm, in Portsmouth, reports excellent health.

Dr. C. Clarke Towle, city physician of Somerville, stated on September 16 that the grippe had reached the proportions of an epidemic there. The malady has spread very rapidly, but there is nothing to show how many cases there are in the city, as they are not reported to the Board of Health.

Two deaths from influenza have been reported from Needham, and the public schools have been closed indefinitely. In Brockton, so-called Spanish influenza and resultant pneumonia have caused the deaths of four persons in the last two days. In Lynn, although no exact figures could be obtained, it was estimated that there were between 600 and 700 cases in the city. An unusually large number of pneumonia cases are being treated at the Lynn Hospital. No deaths have as yet been reported.

Three more deaths were reported on September 17 at William A. Brooks Hospital grounds on Corey Hill in Brookline, where men of the Merchant Marine who are stricken with Spanish influenza are being sent by the United States Shipping Board for treatment.

There have been 7 deaths since the camp was established about a week ago, and 31 new cases were admitted to the hospital camp on September 16, bringing the total number of cases under treatment up to 148. 30 of the 148 patients have pneumonia.

More than 1000 cases are being treated by Gloucester physicians. The epidemic started among the mail clerks in the postoffice. Two of these men have died and several others are in serious condition. In all seven deaths have been recorded.

All schools in Gloucester have been ordered closed by the Board of Health as a precautionary measure to prevent further spread of the

influenza. Of the 1000 pupils in the Gloucester High School more than half were absent on September 16.

Schools have been closed, also, in Sharon, because of the proportions of the epidemic there. In Milford, so serious have conditions become that the superintendent of schools closed the Claffin Grade School, with its six teachers and about 200 pupils. There are no serious cases, but temporary cessation of school contact was deemed wise. There are numerous cases in the other schools.

The Health Commissioner of New York reported on September 17 that 13 cases of so-called Spanish influenza had been found on a United States Naval training ship at the Crane shipyards, Erie Basin. The men were taken to Kingston Avenue Hospital, Brooklyn. 184 cases have been reported in New York. Camp Upton, New York, has been closed indefinitely because of Spanish influenza, so-called, and 170 cases in the base hospital of the camp have been reported under treatment.

PROGRESS OF CAMPAIGN AGAINST VENEREAL DISEASES IN MASSACHUSETTS.

THE following figures will give an idea of the progress to date of the campaign against venereal diseases in Massachusetts. While these figures are encouraging and bespeak a fine spirit of coöperation on the part of the medical profession as a whole, there is, nevertheless, much yet to be accomplished before figures can be presented which will actually indicate the prevalence of these diseases in the communities of our State.

A peculiar responsibility was thrown upon the shoulders of the physician when the decision was reached that syphilis and gonorrhea should be made reportable by number only, unless lapsing treatment. It is the physician alone who holds the secret of the comings and goings of these carriers of disease, consequently it is to him that we must look for the close follow-up work which alone can make this system a success—for success it is proving to be; and the physician can make it a bigger success and a greater boon to humanity by following up every case which comes to his attention until he is satisfied that it is no longer a source of danger to the community.

Physicians are urged to keep in close touch

with the State Department of Health, notifying them immediately when in their judgment a patient is not continuing treatment in competent hands. There is no need of waiting for the expiration of the six weeks of the original regulations: an additional regulation permits immediate report by name when advisable.

State approved and subsidized clinics are being established in the following cities. Those already in operation are marked with a star (*).

*Brockton City Hospital	Holyoke
*Corporation Hospital, Lowell	*Pittsfield
*Lawrence	*Fall River
Fitchburg	Attleboro
*Worcester City Hospital	New Bedford
Springfield	*Lynn Hospital
Boston:	*Massachusetts General Hospital
	*The Boston Dispensary
	*Massachusetts Homeopathic Hospital
	*Boston City Hospital

All these clinics are being supplied with free arsphenamine, manufactured by this Department, and in all treatment may be had free (when conditions warrant it) for syphilis and gonorrhea in both sexes. Evening pay clinics will be available in many cities. Hence, we are urging the support of these clinics as a measure of health conservation and as a patriotic service to Army and Navy.

The value attached to this work by the War Department may be estimated by the fact that the Chief of the Subdivision of Venereal Diseases is a Major of the Medical Corps, detailed to us by the War Department for the purpose of organizing this drive, not alone in this State, but throughout New England.

It may be of interest to note the standards accepted by the United States Public Health Service for the discharge of venereal patients from the Government clinics now established in extra-cantonment zones throughout the country. The basis for discharge of cases of syphilis is as follows:

"No case should be considered as cured for at least one year after the termination of treatment and unless the following conditions have been satisfied: (a) No treatment for one year, during which time there have been no symptoms, no positive and several negative Wassermann reactions. (b) A negative provocation Wassermann reaction. (c) A negative spinal fluid examination. (d) A complete negative physical examination, having special reference to the nervous and circulatory systems. (e) A luetin test may also be included."

Before discharging male gonorrheics the following requirements must be met: "1. Freedom from discharge. 2. Clear urine; no shreds. 3. The pus expressed from the urethra by prostatic massage must be negative for gonococci on four successive examinations at intervals of one week. 4. After dilation of the urethra by passage of a full-sized sound, the resulting inflammatory discharge must be negative for gonococci."

In the gonorrheal infections of women, absence of urethral and vaginal discharge is considered essential before release, in addition to "Two successive negative examinations for gonococci of secretions of the urethra, vagina and cervix, with an interval of 48 hours, and repeated on four successive weeks."

It is recognized by all, that even this comparatively thorough examination does not determine freedom from infectiousness, but guarantees a reasonable degree of safety for the public health. The following figures indicate the degree to which the physicians of this State are meeting the new requirements. Those in a position to judge estimate that about one case in five is being reported. Boston, with approximately 20% of the total population of the State, is reporting 40% of the cases reported. This fact is to be taken with due consideration of the large field covered by the leading Boston clinics.

MASSACHUSETTS VENEREAL DISEASE REPORTS.

Total reported by number to { Syphilis ..	2,116
September 1, 1918 { Gonorrhea	5,044
	7,160
Rep't'd by name (because lapsing tr'm't'm't)	736
Of these there were reclaimed { Syphilis .. 141	
{ Gonorrhea 262	
	403
Of these there were lost... { Syphilis .. { 18*	
{ Gonorrhea { 6†	
{ 123*	
{ 15†	
	162

BOSTON REPORTS.

Total venereal diseases report- { Syphilis ..	1,016
ed by number to Sept. 1, 1918 { Gonorrhea	2,166
Reported by name { Syphilis .. 43	
{ Gonorrhea 175	
	218
Of these there were reclaimed { Syphilis .. 6	
{ Gonorrhea 20	
	26
Of these there were lost ... { Syphilis .. 15	
{ Gonorrhea 109	
	124

By direction of the Commissioner of Health,
JOHN H. HITCHCOCK, M.D.,
Director, Division of Communicable Diseases,
Massachusetts State Department of Health.

*Male; †female.

MEDICAL NOTES.

MORTALITY RATE IN LONDON.—The mortality rate for the city of London during July, 1918, was 14.8 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was 21.4, in Southwark, and the lowest, 9.9, in Wandsworth.

WAR NOTES.

APPOINTMENTS IN THE MEDICAL RESERVE CORPS.—The following appointments in the Medical Reserve Corps have been announced:

Captains.—R. S. Benner, Springfield; C. C. Burpee, Malden; E. W. Burt, Westport; F. F. Hanley, Whitman; W. E. Hunt, Malden; J. V. W. Boyd, Springfield; J. W. Cahill, Worcester; L. J. Maskell, Newton; A. L. Newhall, West Lynn; R. T. Stearns, Mattapan; Ross Halford Miner, Windsor, Vt.; A. G. Hurd, Millbury.

First Lieutenants. Francis H. Lally, Milford, Mass; Chauncey P. Munsell, South Royalton, Vt.; Harry F. Cleverly, Scituate; Howard L. Jackson, West Springfield; Clarence B. Kenney, Winchendon; Walter F. Mahoney, Westboro; Romeo J. Morin, Camp Devens; Olin C. Moulton, South Windham; Darley G. Plumb, Melrose; George L. Steele, West Springfield; N. K. Forhan, North Billerica; W. S. Lyon, Fall River; R. A. Taylor, Waltham; Park Rowe Hoyt, Laconia, N. H.; P. A. Hoyt, Ludlow, Vt.

ARMY AND NAVY MEDICAL CORPS.—Applicants for the Medical Corps of the Army should make application either to Capt. John T. Bottomley, 165 Beacon Street, Boston, or to Capt. Philip Kilroy, 61 Chestnut Street, Springfield. The examiners have application blanks, and will communicate all details as to membership in the Corps. Applicants for the Medical Corps of the Navy should apply to Capt. John M. Edgar, Naval Aid Department, Little Building, 80 Boylston Street, Boston. Captain Edgar has the application blanks, and will give full information as to the requirements and the physical examination.

GENERAL GORGAS IS SATISFIED WITH PARIS HOSPITALS.—Major-General William C. Gorgas, Surgeon-General of the United States Army, after an inspection tour of the Paris military hospitals, where Americans are undergoing treatment, expressed satisfaction with the manner in which the wounded are being cared for. He is reported to have said:

"The cheerfulness and commodious arrangements and the genuine spirit of hopefulness of the wounded in the hospitals have been the most impressive thing witnessed by me since my arrival in France.

"It is inspiring to see the determination displayed by our men; they are filled with real spirit and there is an atmosphere of happiness among them, although they are suffering from wounds. They are well taken care of and the work of the medical department which I have seen so far has been above reproach."

\$12,000,000 MORE APPROPRIATED FOR RED CROSS WORK IN ITALY.—The following statement on behalf of the war council of the American Red Cross has been published:

"In carrying out its work in Italy, the American Red Cross had appropriated to July 19, 1918, the sum of \$7,939,653.50. The greatly enlarged field of opportunity and obligation in Italy has called for an appropriation for the six months ending December 31, 1918, amounting to \$12,657,837.50.

"Thus, by the end of the year 1918 the American Red Cross will have expended since the war began and up to the end of 1918, at least \$20,000,000 in work of relief in Italy.

"During the first three months 267,000 packages bearing the stamp of the American Red Cross and containing socks, chocolate, cigarettes and a variety of useful articles were distributed to the men in the trenches. Rolling canteens were sent to the front, each canteen being capable of feeding 800 to 1000 men a day. Ten were soon in commission. Canteens and rest rooms were established at various stations among the railroads and highways, where the men could find rest and food if needed. During these first three months more than 60,000 soldiers were cared for.

"Today Italy is fully convinced that the American people are a nation of deeds as well as words. There is scarcely a village or commune in the whole country which has not been given unmistakable evidence of the generosity, kindness, and ability of America in the work of saving Europe from the grasp of Teutonic autocracy."

WOUNDED SOLDIERS REACH BOSTON.—The second contingent of wounded American soldiers has recently arrived in Boston. It was officially stated that the total sick and wounded arriving was 195. This number included 13 infantrymen of Boston and New England regiments now on the French front.

Of the 195 wounded men arriving from overseas, 52 are stretcher cases. These men must be kept in bed, for the present at least. They were removed to the Boston City Hospital. As soon as they get back some of their strength

they will be transferred to various army hospitals.

Thirteen were sent to the Boston Psychopathic Hospital for rest. These men are suffering from shell shock. The more severe of these cases, and those which require a long period of recovery, will be sent to the army hospital at Buffalo as soon as they are able to make the journey. One of the men is in an advanced stage of tuberculosis. He was sent to the local State Hospital for treatment. The remainder of the wounded soldiers were transferred to the army hospitals of the Boston Coast Defence forces.

The Boston Metropolitan Chapter of the Red Cross provided an abundance of automobiles and nurses to convey the men to the various hospitals to which they had been assigned. Autos and ambulances were also provided by the State Guard and by Boston hospitals. Fifteen members of the Marine Corps were sent to the Naval Hospital at Chelsea to be taken care of by the naval authorities.

All the patients were examined by Major Austin, assistant medical officer of the North-eastern Department, and the plans for landing the men were directed by Surgeon Breck. Two army nurses and 18 Sisters of the Holy Ghost came back with the men.

SUPERVISING NURSES TO SAIL FOR ITALY.—Three supervising nurses from the Instructive District Nursing Association have sailed for Europe for work in the service of the Red Cross Italian Tuberculosis Commission. They are Miss Ethel Nichols, extra field supervisor, graduate of Johns Hopkins Hospital, and Miss Mary McCarthy and Miss Mary Davis, assistant supervisors, graduates, respectively, of the Boston City Hospital and of the New York Post-Graduate.

Miss McCarthy, who is a niece of Miss Mary Gardner, chief of the commission's nursing unit, has already done two years' nursing at the front, having gone over with one of the earliest Red Cross units.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 14, the number of deaths reported was 219, against 206 last year, with a rate of 14.56, against 13.91 last year. There were 34 deaths under one year of age, against 50 last year.

The number of cases of principal reportable

diseases were: diphtheria, 40; scarlet fever, 5; measles, 8; whooping cough, 35; typhoid fever, 7; tuberculosis, 64.

Included in the above were the following cases of non-residents: diphtheria, 5; typhoid fever, 3; tuberculosis, 18.

Total deaths from these diseases were: diphtheria, 4; whooping cough, 3; typhoid fever, 2; tuberculosis, 17.

Included in the above were the following non-residents: typhoid fever, 1; tuberculosis, 4. Influenza deaths, 19.

BOSTON UNIVERSITY SCHOOL OF MEDICINE.—Boston University announces that its medical department has been thoroughly reorganized and henceforth will be non-sectarian in scope and character.

Eminent physicians of the "regular" school will conduct courses in pharmacology and therapeutics, and clinical teaching will be given in the Boston City Hospital and the Robert B. Brigham Hospital. Homeopathic materia medica will be taught as heretofore, with clinical teaching in the Massachusetts Homeopathic Hospital and allied institutions.

The spirit of the times is to do away with sectarianism in things scientific. In accord with this spirit, this school in 1918 announces that its curriculum has been made as broad and inclusive as is consistent with the medical science of the day.

PUBLIC BEQUESTS.—The will of the late Abbie T. Vose of Boston contains the following public bequests: To the Massachusetts General Hospital, \$5000 to establish a free bed in memory of the husband of the testatrix, Andrew J. Vose; \$2000 each to the trustees of the Consumptives' Home, Blue Hill Avenue, Dorchester, Peter Bent Brigham Hospital, Mt. Pleasant Home, Roxbury; \$1000 each to the Boston Floating Hospital (in memory of Sadie Lizzie Vose, daughter of Mrs. Vose), Massachusetts Society for the Prevention of Cruelty to Children, New England Home for Little Wanderers, the Children's Hospital, Longwood Avenue, Brookline, Perkins Institute for the Blind, St. Mary's Infant Asylum, Cushing Avenue, Boston Lying-in Hospital, Morgan Memorial, Industrial School for Crippled and Deformed Children, and the Forsyth Dental Infirmary for Children; \$500 each to the Salvation Army and the New England Deaconess Association, and \$400 to the Home for Aged Women.

SHARON SANATORIUM, MASSACHUSETTS.—The twenty-seventh report of the Sharon Sanatorium, issued in July, 1918, combines the reports of 1917 and 1918 into a brief statement of the purpose and achievements of the institution. The object of this sanatorium is to give treatment to women and children in the incipient stages of pulmonary disease who, for pecuniary or other reasons, are unable to seek distant health resorts. No advanced cases have been admitted. In spite of difficulties which have arisen because of the war, the Women's Department has been carried on with its usual high standard of efficiency. The Children's Pavilion, which is a combined sanatorium and school for children in the early stages of pulmonary and glandular tuberculosis, has been completed and is ready to receive boys and girls between the ages of seven and fourteen years. Sharon Sanatorium has been called upon by the Government to help the wives of men in the Army and Navy.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR AUGUST, 1918.

General Prevalence. During the month of August, 4315 cases of communicable diseases were reported, as compared with 6253 for July and 3160 for August, 1917. The case rates per 100,000 population were, respectively, 110 for August, 1918, 159.5 for July, and 82.0 for August, 1917. The increase of cases for August, 1918, over the cases for the same month last year is accounted for by the reporting of venereal diseases, which were not reportable last year. A marked decrease in the number of cases for August was evidenced in all forms except typhoid fever, which showed an increase over July of 76 cases; lobar pneumonia, with an increase of 30 cases; gonorrhea, with an increase of 78; and syphilis, increased by 75 cases.

Diphtheria. Diphtheria was widely scattered throughout the State and was reported in 337 cases, a decrease of 116 cases over the preceding month.

Measles. This condition showed a marked decrease in number of cases reported, the total

being 500, as compared with 1962 cases in July, a decrease of 1462 cases.

Lobar Pneumonia. The total number of cases for the month was 170. All but 60 of these cases were reported from Camp Devens.

Scarlet Fever. This disease was reported in 123 cases, a decrease from July of 77 cases. Its incidence was widely distributed throughout the State with no outbreaks.

Typhoid Fever. Typhoid fever showed an increase of 76 cases for August over the preceding month, the total number reported being 188. In August, 1917, 246 cases were reported. The incidence was well distributed, with but few cities or towns exceeding their endemic index.

Malaria. This disease was reported from Uxbridge in 21 cases. This does not mean, however, that there has been an unusual amount there, but that in this instance the reporting is being more conscientiously followed out. It would seem from the few cases of malaria reported each year that physicians are not fully aware of their obligation to report their cases. It is just as necessary to report malaria as to report diphtheria or typhoid, and it is particularly essential at this time when the movement of the men in National Service is bringing so many carriers from malarial-infected regions to our community. Laboratory examination for the plasmodium of malaria is considered absolutely essential for the proper diagnosis and treatment from a public health viewpoint, and the State Bacteriological Laboratory is desirous of receiving specimens for examination.

Whooping Cough. Whooping cough shows a slight decrease in number of cases for the month, but the incidence is, however, still in excess of what is to be desired. August cases numbered 688, while in July 781 cases were reported.

Outbreaks. A mild outbreak of typhoid fever, with 18 cases, occurred, which proved upon investigation to have its origin in the water used in washing milk utensils. This water was obtained from a spring which was draining a privy situated some 50 yards away. In the house there had been a case of typhoid fever, and the excreta was emptied into this privy.

Another small outbreak of seven cases of typhoid was found on one man's milk route. It was determined that the woman who washed

the milk bottles had a positive laboratory test and seems to be an intermittent carrier.

An outbreak of influenza, which appeared first among the Naval forces located at Commonwealth Pier, has assumed epidemic proportions. It has also spread to the civilian communities, and as it seems to be particularly infectious unless due care is taken to prevent exposure, we are in danger of a widespread epidemic. Broncho-pneumonia is seen as a sequel and is proving fatal in some instances. This Department recommends that grippe should not be treated too lightly, that a good physician be consulted, and that return to work be delayed until full recovery is assured. The incubation period seems to be from a few hours to two or three days.

DISTRIBUTION.

ALL COMMUNICABLE DISEASES.

Total cases: July, 1918, 6,253; August, 1918, 4,315; August, 1917, 3,160.
Case rate per 100,000 population: July, 1918, 159.5; August, 1918, 110.0; August, 1917, 82.0

CERTAIN PREVALENT DISEASES.

Diphtheria

Total cases, July, 1918, 453; August, 1918, 337; August, 1917, 590.
Case rate per 100,000: July, 1918, 11.6; August, 1918, 8.6; August, 1917, 15.3.

EXCEEDING THEIR ENDEMIC INDEXES.*

North Attleboro	(1)	5
Chelsea	(5)	10
Wakefield	(1)	8
Somerville	(7)	12

Lobar Pneumonia

Total cases: July, 1918, 140; August, 1918, 170; August, 1917, 57.
Case rate per 100,000: July, 1918, 3.6; August, 1918, 4.3; August, 1917, 1.5.

Measles

Total cases: July, 1918, 1,962; August, 1918, 500; August, 1917, 380.
Case rate per 100,000: July, 1918, 50.0; August, 1918, 12.8; August, 1917, 9.9.

EXCEEDING THEIR ENDEMIC INDEXES.*

Haverhill	(2)	17
Lawrence	(4)	12
Lowell	(20)	40
Worcester	(9)	23
Leominster	(3)	15
Easthampton	(2)	26
Montague	(0)	19

Scarlet Fever

Total cases: July, 1918, 200; August, 1918, 123; August, 1917, 145.
Case rate per 100,000: July, 1918, 5.1; August, 1918, 3.1; August, 1917, 3.8.

EXCEEDING THEIR ENDEMIC INDEXES.*

Greenfield	(1)	5
Pittsfield	(4)	7

Typhoid Fever

Total cases: July, 1918, 112; August, 1918, 188; August, 1917, 246.
Case rate per 100,000: July, 1918, 2.9; August, 1918, 4.8; August, 1917, 6.4.

EXCEEDING THEIR ENDEMIC INDEXES.*

Gloucester	(2)	7
Marlborough	(1)	18
Athol	(9)	3
Southbridge	(0)	7
Fall River	(22)	36

Whooping Cough

Total cases: July, 1918, 781; August, 1918, 688; August, 1917, 228.

Case rate per 100,000: July, 1918, 19.9; August, 1918, 17.5; August, 1917, 8.8.

EXCEEDING THEIR ENDEMIC INDEXES.*

New Bedford	(5)	18
Taunton	(2)	13
Cambridge	(12)	114
Quincy	(1)	18
Lawrence	(6)	20
Somerville	(4)	28
Waltham	(3)	24
Frammingham	(2)	15
Newton	(5)	13

Tuberculosis, pulmonary

Total cases: July, 1918, 620; August, 1918, 613; August, 1917, 693.

Case rate per 100,000: July, 1918, 15.8; August, 1918, 15.6; August, 1917, 18.0.

Tuberculosis, other forms

Total cases: July, 1918, 82; August, 1918, 60; August, 1917, 67.

Case rate per 100,000: July, 1918, 2.1; August, 1918, 1.5; August, 1917, 1.7.

* Endemic index signifies the average for five years of reported cases exclusive of epidemics. This index is applied to each city and town for each month for the more common communicable diseases. The numbers in parentheses after the names of each city and town indicate the endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

RARE DISEASES.

Anterior Poliomyelitis was reported from Winthrop, 1; Belmont, 1; Dedham, 2; Holyoke, 2; Springfield, 2; New Bedford, 5; Sterling, 1; Boston, 1; Hopedale, 2; Northampton, 1; Whately, 1; Cambridge, 1; total, 20.

Anthrax was reported from Peabody, 1 case.

Dog-bite Requiring Antirabic Treatment was reported from North Attleboro, 2.

Dysentery was reported from Melrose, 3; Newburyport, 1; Somerville, 1; Medfield, 2; Ipswich, 2; Boston, 2; Essex, 2; Dartmouth, 6; Pelham, 1; total, 20.

Epidemic Cerebrospinal Meningitis was reported from Boston, 3; Worcester, 1; Lynn, 3; Brockton, 1; Cambridge, 1; Springfield, 1; Newburyport, 1; Wakefield, 1; Spencer, 1; Bridgewater, 2; Winchester, 1; Camp Devens, 1; Westfield, 1; total, 18.

Malaria was reported from Natick, 2; Dedham, 1; Camp Devens, 3; Uxbridge, 21; Boston, 3; Fall River, 1; total, 31.

Pellagra was reported from Leominster, 1; Lynn, 1; total, 2.

Septic Sore Throat was reported from Haverhill, 1; Boston, 1; total, 2.

Tetanus was reported from Brockton, 1; Plymouth 1; total, 2.

Trachoma was reported from Boston 11; Worcester, 1; Medford, 1; New Bedford, 1; Lawrence, 1; Haverhill, 1; Chelsea, 1; total, 17.

Occupational Diseases.—Reported by the State Board of Labor and Industries:

OCCUPATIONAL DISEASES—REPORTED BY THE STATE BOARD OF HEALTH.

DISEASE	OCCUPATION	LOCATION	SEX	AGE	COLOR
Aniline	Mixer	Chicopee Falls	M	30	W
Aniline	Chem. W'rk'r	Lawrence	M	28	W
Anthrax	Yard Labor	Woburn	M	32	W
Chlorine					
Gas	Beater helper	Adams	M	48	W
Lead					
Poisoning	Painter	Cambridge	M	44	W

Correspondence.

THE CRANE SANATORIUM.

Boston, September 16, 1918.

Mr. Editor:—

My attention has recently been called to an article in the JOURNAL of August 8, 1918, page 217, entitled "The Crane Sanatorium," and in the JOURNAL of August 22, 1918, the editorial "Preparedness in Tuberculosis." Inasmuch as the last paragraph of the former article, through an evident inadvertance, contains a statement which might give the public a very wrong impression of facts, I wish, in behalf of the Directors of the Crane Sanatorium, to express their sincere regret for any such impression and to say that the article in question appeared in the JOURNAL without any previous knowledge on their part. It is probable that the statements in certain appeals made for the sanatorium in the newspapers may have been misconstrued as reflecting upon the admirable work now being done by the Trustees of the Massachusetts Hospitals for Consumptives towards housing the increasing numbers of tuberculous soldiers. Certainly if this impression has got abroad it was entirely against the wishes or intention of the Directors of the Crane Sanatorium and they deeply regret any such misinterpretation. Their only wish is to work in entire harmony with pre-existing institutions and to keep Massachusetts still in the vanguard in meeting this great problem.

It should be distinctly understood that the proposed sanatorium is intended chiefly for the type of patients who are of very moderate means but who desire and need the privacy of sanatoria *not under the state or municipal care*. Of this kind of institution in New England and elsewhere there is a lamentable lack, as every specialist who has practical and not merely theoretical knowledge of present conditions will testify. There will inevitably be an increasing number of men with tuberculosis discharged from the Army and Navy who, needing just such accommodations and shrinking from the publicity of large institutions, yet have not the means to enable them to seek the more expensive resorts intended for the wealthy. The new Crane Sanatorium now under construction is to be run *without profit* to meet, so far as it can, the needs of both the civilian and military classes of the type mentioned.

In endeavoring to impress the public of the pressing need in the immediate future, special stress has

been laid in the public appeals upon the military and naval aspect of the question, although the same need exists to an equal degree for the civilian class. This is the stated opinion of almost every specialist of large experience in tuberculosis. If, in their endeavors to meet that need, the Directors of the Crane Sanatorium have unwittingly implied that the State is not doing its part to supply accommodations for tuberculous soldiers, they desire to express their sincere regret through your columns. Inasmuch as criticism has been brought to bear upon the Directors for alleged misstatements in public journals, it seems only just to call to the attention of the writer of the editorial alluded to that civilians and soldiers are already applying unsuccessfully for accommodations in the town of Rutland alone through the post-office and otherwise. Furthermore, it has recently developed that the Army will not care for every case of tuberculosis in the ranks, it being decided that it shall be largely a matter of choice for the individual between remaining in institutions prepared by the Army Medical Department or demanding discharge from the Army and then coming under the control of The Public Health Service. The latter department has urged the construction of the Crane Sanatorium as at least a secondary war measure, and has stated that it will make the "most ample use" of it when completed.

Yours very truly,
VINCENT Y. BOWDITCH.

SOCIETY NOTICE.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—A quarterly meeting will be held at the Amesbury Club September 25, 1918, at noon. Papers by Lieut.-Col. F. B. Lund and Lieut.-Col. Channing Frothingham.

J. F. BURNHAM, M.D., *Secretary*.

RECENT DEATHS.

FREDERIC JOSEPH DENNING, M.D., died in Boston, September 17, 1918. He was a graduate of the Harvard Medical School in the class of 1908, and practised in South Boston.

DR. THOMAS F. LEEN of Boston died on September 16, at the Carney Hospital, as a result of pneumonia following overwork in attending soldiers and sailors suffering from influenza. Dr. Leen was born in Boston about 43 years ago. He graduated from Harvard in 1898 and from Harvard Medical School in 1901.

EDGAR MILLER HOLMES, M.D., was drowned by the overturning of a canoe off his summer home at Allerton, Mass., September 19, 1918.

Dr. Holmes was a native of Middletown, Conn., where he was born May 25, 1868. He was the son of Giles D. and Emma R. (Miller) Holmes. He was a graduate of the Harvard Medical School, class of 1895, and since then had practised in Boston. He specialized in the treatment of the ear, nose and throat and was visiting surgeon for the ear and throat at the Boston City Hospital, ear and throat surgeon at St. Elizabeth's Hospital, and aural surgeon to the Boston Dispensary where he remained for eighteen years. He also was consulting aurist at the Forsyth Dental Infirmary, and he was an instructor at the Harvard Post Graduate Medical School, a member of the American Medical Association and of the Massachusetts Medical Society, and of the Unitarian and Harvard Clubs.

Dr. Holmes was twice married. His first wife was Pauline G. Prentice of Grafton, to whom he was married in 1895. She died in 1907, and later Dr. Holmes married Lottie A. Crowell. Three children by the first wife were Marjorie, Pauline and Edgar Miller Holmes, Jr.

The Boston Medical and Surgical Journal

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Original Articles.

THE KIDNEY FUNCTION IN 100 CASES OF HYPERTENSION.

BY W. C. RAPPLEYE, M.D., FOXBOROUGH, MASS.

Pathologist, Foxborough (Mass.) State Hospital.

EVERY new feature of diagnosis has in turn been acclaimed as marking a new epoch in the progress of medical science and research. To each new device for gaining additional information regarding the mechanism of the body functions has been given a credit and a promise to which most of them have no claim, and which they usually fail to fulfill. Not that the newer and more accurate methods and instruments for studying bodily functions are not making definite and, in some instances, noteworthy contributions to our knowledge of physiology, both normal and abnormal, but it is equally true that the value assigned to the possibilities of some of these methods has not been realized. The enthusiasm accompanying the introduction of new methods of diagnosis frequently fails to give to such new methods their limited, though possibly great, importance and a natural reaction of distrust follows, resulting in a failure to give the same methods an importance really due them.

The introduction of the sphygmomanometer into clinical medicine opened up a field of investigation previously considered only of laboratory interest. The fervor following its early use and the immense significance assigned to the finding of hypertension are commonplace knowledge, so established in general use that the laity are quite familiar with the expression "high blood pressure." Surely no attempt is made to belittle the use of the instrument, for no physical examination can now be considered adequate which fails to take cognizance of the degree of arterial tension, and a suggestion so obtained of the stress and load on the cardiovascular system is an important item of information.

The very frequent finding of an elevated blood pressure in chronic nephritis led earlier observers to believe hypertension almost pathognomonic of chronic nephritis. The even casual observation of elevated blood-pressure readings thereupon assumed an unwarranted significance. Other observers noted the frequency of increased readings in nervous diseases to which the diagnosis of some form of arteriosclerotic psychosis was wont to be attached. This led to a feeling that hypertension was practically essential to such a diagnosis of

the mental picture, and its value has probably been over-emphasized in text books of psychiatry, many of which require that hypertension be present for a diagnosis of arterioselebotic mental diseases. However, emphasis should again be laid on the fact that the very finding of elevated blood pressure entails careful consideration of the possibility of renal involvement in patients presenting themselves for symptoms consistent with such a possibility.

While it is true that great and possibly too great emphasis has been laid on the relation of hypertension and nephritis, more general observations of blood pressure in general hospitals and private practice have led to a clearer understanding of its significance and an appreciation of the fact that hypertension is common and frequently unassociated with any demonstrable evidences of renal insufficiency.

The present communication is not concerned with a discussion of the causes of high blood pressure or its treatment, but is a report of the study of 100 cases of elevated blood pressure in which some idea of the kidney function has been obtained. The inquiry is into a group of cases of varying ages, for the selection of which the blood pressure values alone have been used as a criterion. Unless otherwise noted, each patient was in apparently good condition, none of them having any edema, fever, dyspnea or other conditions within a period which could be considered as influencing the present data, and all were up and about, most of them engaged in working about the wards, dining rooms, farm or industrial rooms. None of the patients were anemic, the hemoglobin values ranging from 70-100%, and the blood cytology presented nothing of note.

The observations which were made consisted of the blood urea, expressed as blood urea nitrogen, the rate of elimination of phenolsulphonphthalein, the urine analysis, and the blood pressure readings. The blood urea nitrogen was determined by the Marshall urease method, using the aeration and titration procedure. The determinations were made in each instance on 5 cc. of citrated blood. The blood-pressure readings were obtained in mid-afternoon for the most part, and the values given represent the mean of a number of readings taken at intervals over a period of several months. The phenolsulphonphthalein test of Rountree and Geraghty was used in the usual manner.

It may be noted that the blood in each in-

stance was drawn before breakfast, about twelve hours after the preceding meal. The plan fails, of course, in securing evidence of a retarded excretion of urea, which might be considered as evidence of a slightly diminished renal efficiency. But the plan does give values which are largely independent of the diet and values which can be considered more or less characteristic of the individual, for determinations made at different times on the same individual are usually quite approximate values. No attempt has been made to determine the rate of excretion of urea by the kidneys, due to the difficulties of administration of such studies. The functional response of the kidneys, as indicated by the use of the two-hour and similar tests, was not investigated.

DISCUSSION OF THE RESULTS.

Since the basis of selection of this group of patients for study was that of elevated blood pressure (150-155 mm. or over), it is worthy of note to learn what proportion of the total hospital population show the finding. Not all the cases of high blood pressure in the institution were included in this inquiry, but about 20% of the patients in the hospital show readings considered as higher than normal (systolic 110-135 mm., diastolic 80-90 mm.), though the values frequently range from 140-160 mm. systolic, 85-95 mm. diastolic and show considerable variation from time to time.

Another point of interest is the ages of the patients. It will be noted that only 20 of the 100 cases studied were below 50 years of age, the ages ranging from 28 to 88 years. The high incidence of mild degrees of renal insufficiency during and following the fifth decade allows one to predict in any group of individuals of this size the presence of a number of cases who will show some impairment of kidney function.

The possibility of a study of this character on a group of state hospital patients being considered inapplicable to outside conditions seems unlikely. While it is true that all of the patients studied were psychotic, the mental disease can hardly be considered as influencing the renal function. Nor can it be said that an impaired kidney function or a high blood pressure served to any degree as a definite factor in their mental diseases, and hence lend to the data a feature which would compromise any

deductions which could be made from the study. The incidence of high blood pressure among psychotic individuals is probably little different from that found in the general public of the same ages. The wear and tear of competition, worry, intemperance in general, the struggle for a livelihood and other nervous strain placed upon individuals in the general public may possibly tend to place more pro rata cases of hypertension in the public at large than are found in state hospitals. However, the matter of relative frequency in the general population of the feature studied here need call for little consideration.

Using the blood urea nitrogen as a criterion, there is found a mild degree of retention in 37 of 94 cases (39%) in which this determination was made. The figure which one considers as normal for blood urea influences the opinion as to whether there is or is not retention. The values found on patients here whose kidney function is regarded as normal rarely exceed 15.0 mgs. per 100 cc. blood, the blood being drawn as here, some 12-14 hours after the preceding meal. This figure is at variance with the values given by several observers, but under the conditions of diet and hospital routine here it is unusual to find a blood urea nitrogen over 15.0-16.0 mgm. in cases free from possible renal insufficiency. The usual values range from 9.0 to 14.0 mgm. per 100 cc. of blood. In the group studied there were 29 of the 94 cases (31%) who showed a value of 16.0 mgm. or higher. There is evidently little if any relationship between the blood urea nitrogen and the blood pressure, either the systolic or diastolic pressure, or the pulse pressure. For instance, of 61 cases showing a systolic blood pressure of 170 mm. or higher, in which the blood urea nitrogen was determined, 36, or 58%, showed values of 15.0 mgm. blood urea nitrogen or less per 100 cc., and 43, or 70%, showed values below 16.0 mgm., whereas 23 cases, or 42%, showed values of over 15.0 mgm. and 18, or 30%, showed values over 16.0 mgm. Of the 50 cases showing diastolic readings of 100 mm. or more, 30 cases, or 60%, showed blood urea nitrogen values of 15.0 mgm. or less, and 36, or 72%, showed values below 16.0 mgm., while 20 cases, or 40%, showed values over 15.0 mgm., and 14 cases, or 28%, of the number gave values over 16.0 mgm.

When the rate of elimination of phenolsulphonophthalein is examined, it is found that of

the 89 patients in whom this observation was made, there were 45 instances in which the dye excretion was established as 40% or less, representing approximately 50% of the cases. Since there were 15 instances where the value was 40%, there were 30 cases having a value below 40%, 34% of the cases on whom the value was obtained. This figure in a few instances was obtained not long before death, but this number is the same as those in whom there was some question as to the low finding, hence they check each other.

A comparison of the rates of elimination of the dye with the blood-pressure readings fails to suggest any relationship between the excretion and either the systolic or diastolic figures. There were 51 cases showing a systolic pressure of 170 mm. or over in which the dye elimination was satisfactorily ascertained, and of these, 28 cases, or 55%, showed a figure of 40% elimination or lower, 19 cases (37%) showed values below 40%; the others showed a value of elimination of 45% or greater. Very similar figures were obtained on comparison of the elevated diastolic blood pressure figures, for of the 44 cases showing an elevated diastolic value (100 mm. or higher), 24, or 55%, of the cases showed a phthalein output of 40% or less; 17, or 39% of the cases, showed a value below 40%.

Considering the inter-relationship of the blood urea nitrogen values and the corresponding rates of elimination of phenolsulphonophthalein where both determinations were made on the same patient, it will be noted that in 29 cases showing a blood urea nitrogen value of 16.0 mgm. or over, 90% of the same patients showed a dye excretion of 40% or less, only three such patients showing an elimination of, over 40%. There were 8 cases showing blood urea nitrogen values ranging between 15.0 and 16.0 mgm. per 100 cc., and of these, 6 showed a phthalein figure of 40-50%. It seems quite evident that the transition zone from normal to abnormal blood urea nitrogen is from 15.0 to 16.0 mgm., and closely corresponds with the phthalein excretion values of 40 to 50%.

There were 82 cases in which both the blood urea nitrogen and the phenolsulphonophthalein elimination were ascertained, and among these there were 23 cases (28%) which had a nitrogen figure of 16.0 mgm. or higher, and a phthalein of 40% or less as compared with three cases having a nitrogen value of 16.0 mgm. or over and a phthalein of over 40%.

Twenty-nine of these 82 cases (35%) had urea nitrogen figures of 15.0 mgm. or less, with the dye excretion 40% or less, and 5 with the dye excretion over 40%. The inverse relation of these two factors is well illustrated in these cases and bears out clearly the claim that a low excretion of phenolsulphonephthalein is usually accompanied by an elevated blood urea.

In this group are found a number of cases of so-called essential hypertension in which the blood urea nitrogen is well within normal limits and the phthalein output is distinctly good (50% or greater), but in which the blood pressure is elevated. There are 24 such cases showing a blood pressure of 160 mm. or over, 16 with a pressure of 170 or over and 9 showing a systolic reading of over 190 mm.

A number of routine urine examinations were made and albumin demonstrated in 23 cases (23%). There were four cases of glycosuria and several more of hyperglycemia (not reported upon). Two instances of hematuria were discovered. No special attempt was made to find casts, but in a routine sediment examination casts were found in small numbers in over one-half of the urines, a customary finding.

Reviewing these findings, it does not seem evident that an elevated blood pressure, either systolic or diastolic, allows of a prediction that the kidney function is depressed, although in this series of cases a considerable number do show evidences of such a depression in function, judging from the blood urea, phenolsulphonephthalein elimination and urine analysis. No little emphasis has been laid upon the close association of a nephritic process with an elevated diastolic blood pressure especially, but in the cases studied here no claim to such a relationship can be made. This refers to both the blood urea and the dye elimination. It must be borne in mind that many cases do not show an elevated blood pressure, but have elevated blood urea and a corresponding depression of dye excretion.

Probably there are few data in this series bearing on the causal relationship of renal insufficiency and high blood pressure, and such a discussion is beyond the scope of the paper. The opinion that hypertension results from impaired renal excretion raises the question whether or not the reverse may not frequently be true, that the impaired kidney function results from the hypertension with its concomi-

tant vascular and perivascular changes, which tend to impair the nutrition and function of the kidney parenchyma. That the two phenomena are closely related needs no emphasis, and the finding of hypertension, while not necessarily signifying a nephritis so far as the more casual examinations indicate, may denote that chronic nephritis will supervene.

In passing, it will be noted that 13 of these patients have died. The usual causes of death in such patients are associated with the cardiovascular-renal disease or acute infections. Of these patients, three died of chronic myocarditis, three of cerebral hemorrhage, three of pneumonia, one of general peritonitis, one of cancer of the bladder, one of pulmonary tuberculosis, and one of general paralysis of the insane. As yet the microscopic examination of the renal tissues has not been done.

SUMMARY.

A study of the blood urea nitrogen, elimination of phenolsulphonephthalein and urine analysis was made on 100 cases of elevated blood pressure, using the figure of 150-155 mm. systolic pressure as the low value for selection. With but four or five exceptions, the patients were in apparently good physical condition and active, none showed any edema, dyspnea, fever or other compromising conditions.

In this group of patients, therefore, it may be said that 70% showed blood urea nitrogen values below 16.0 mgm. per 100 cc. (whether considering the whole group or only those showing a systolic value of over 170 mm. or a diastolic figure of over 100 mm.), and 66% showed a dye excretion of 40% or higher; 16% showed a value of 40%. A slightly lower percentage was found in those patients showing a higher blood pressure (systolic of 170 mm. or over, diastolic of 100 mm. or over). Twenty-eight per cent. showed both a urea nitrogen of 16.0 mgm. or over and a dye excretion of 40% or less. Ninety per cent. of the cases showing a urea nitrogen of 16.0 mgm. or over had a dye excretion of 40% or less. Twenty-four of the cases showed a blood pressure over 160 mm., a urea nitrogen below 15.0 mgm. and a phthalein over 50%. The presence of albuminuria and cylindruria in the type of case studied here does not allow a prediction that the renal efficiency is impaired, if we choose to judge the efficiency by the features to which reference has been made.

No.	AGE	BLOOD		Spec. Grav.	Alb.	Sug.	URINE		RENAL FUNCTION
		PRESSURE	UREA NITROGEN				Blood	Sediment	
1*	58	170-70	..	1018	Tr.	0	Pos.	R. B. C. hyal. casts. Pus	30%
2*	50	192-90	16.2	1026	S.T.	Pos.	Pos.	Occ. R. B. C. pus-hyal. casts	25%
3	64	175-100	19.6	1012	0	0	0	Rare hyal. casts	30%
4	57	165-95	15.4	1020	0	0	0	Few hyal. casts	40%
5	55	160-90	..	1020-28	V.S.T.	0	0	Few gran casts	30%
6	67	160-95	18.5	1030	V.S.T.	0	0	Many hyal. casts	35%
			19.9						
7	48	170-120	15.4	1020-28	0	0	0	Rare hyal. casts	40%
8	65	175-90	16.2	1010	S.P.T.	0	0	Occ. hyal casts	40%
9	54	150-90	15.4	1022	S.P.T.	0	0	No casts	40%
			15.9						
10	65	180-100	16.2	1012	S.P.T.	0	0	Occ. hyal. casts	Uncoop.
11	71	210-120	14.3	1016-30	0	0	0	Occ. gran., rare hyal. casts	Uncoop.
			16.5						
12	50	160-80	11.7	1022	0	0	0	Rare gran. casts	50%
13*	83	215-100	20.2	1020	0	0	0	Occ. hyal. casts	25%
14	77	170-95	17.9†	1020-22	0	0	0	Occ. hyal. casts	70%§
		210-90	15.7						55%‡
									35%†
15	71	200-120	12.9	1020	0	0	0	Rare hyal. casts	50%
			11.7						
			13.4						
16	74	220-105	9.2	1018	0	0	0	Rare hyal. casts	50%
		160-95	8.4						
17*	70	240-115	34.8‡	1010-18	S.T.	0	0	Occ. gran.	45%§
18	47	175-95	11.2	1015	0	0	0	No casts	35%
19	75	180-100	12.3	1011-20	0	0	0	Rare hyal. casts	Disch.
20	48	160-105	15.4	1020-28	0	0	0	No. casts	40%
21*	58	200-110	17.1	1012	0	0	0	Occ. gran. casts	15%
			17.9						
22	63	190-95	15.7	1022-30	S.T.	Pos.	0	Few hyal. casts	5%
									5%
23	56	190-110	14.0	1014	0	Pos.	0	No casts	40%
24	58	170-100	11.8	1020	0	0	0	No casts	30%
25	55	165-90	15.7	1018	0	0	0	No casts	45%
			11.5						
26	60	175-105	20.2	1018-22	0	0	0	No casts	20%
			21.3						
27	57	195-120	15.4	1008-30	0	0	0	Rare hyal casts	60%
		216-124	15.7						
		170-80	12.0						
28	63	195-120	..	1010	0	0	0	Occ. gran casts	20%
29	45	155-95	11.5	1015	S.P.T.	0	0	No casts	50%
30	50	170-95	15.4	1028	0	0	0	No casts	40%
31	77	180-90	9.2	1014	0	0	0	No casts	55%
		210-85	13.4						
			15.1						
32	88	200-140	16.8	1008-22	0	0	0	Occ. gran. and hyal. casts	35%
		180-115	16.8					Hyal. casts	
33	70	160-100	16.5	1006-12	0	0	0	Gran. casts	30%
34	78	152-80	11.2	1014-22	0	0	0	Hyal. and gran. casts	Uncoop.
			12.3						
35*	65	190-110	16.3	1021	V.S.T.	0	0	Hyal. and gran. casts	
36	65	200-95	12.8	1012	0	0	0	Few hyal. casts	40%
37	51	160-120	9.2	1015	V.S.T.	0	0	No casts	55%
38	61	180-110	14.3	1020	0	0	0	No casts	50%
39	73	182-120	10.6	1022	0	0	0	Rare hyal. casts	35%
			13.4						
40	66	160-120	13.4	1002-24	0	0	0	No casts	30%
41	77	180-90	12.1	1024	0	0	0	No casts	45%
			11.8						
42	60	210-110	9.5	1012	0	0	0	No casts	50%
		180-100	12.3						
43	39	155-85	10.6	1025	0	0	0	Few gran. casts	65%
44	70	170-90	22.4†	1012-24	S.P.T.	0	0	Hyal. and gran. casts	50%‡
			15.4						
		180-95	19.9						35%†
45	72	160-90	20.2	1020	S.T.	0	0	Gran. casts	15%
			18.2						
46	71	155-90	13.4	1014	S.P.T.	0	0	Occ. hyal. casts	Uncoop.
47	68	210-155	12.3	1010	0	0	0	Occ. hyal. casts	55%
48	67	160-100	17.4	1012-30	0	0	0	Occ. hyal. casts	30%
									40%

*Died

†1918

‡1917

§1916

No.	AGE	BLOOD PRESSURE	BLOOD UREA NITROGEN	URINE					RENAL FUNCTION
				Spec. Grav.	Alb.	Sug.	Blood	Sediment	
49	54	175-120	9.5 14.0	1012-18	0	0	0	No casts	50%
50	65	160-100	23.2 18.7 20.7	1018-30	0	0	0	Few gran. casts	55%
51	57	160-95	12.0	1015	0	0	0	No casts	40%
52	45	155-85	17.4	1025	S. P. T.	0	0	Occ. hyal. casts	10% 5%
53	55	165-110	21.3	1012-20	S. P. T.	0	0	Occ. hyal. casts and gran. casts	10%
54	68	160-95	15.9 15.4	1016	0	0	0	No casts	50%
55	71	155-90	21.8 19.0 17.4	1020	0	0	0	Many hyal. casts Gran. casts	60%
56	70	170-85	11.7 12.3	1004-20	0	0	0	Hyal. and gran. casts	50%
57	37	160-110	12.9	1028	0	0	0	No casts	45%
58*	79	170-110 150-80	10.1 11.2 15.1	1025	S. T.	0	0	Few gran. casts	25+ % Inconti- nent 30%
59*	70	230-100	21.8 16.9	1018	0	0	0	No casts	
60	78	180-95 210-80	14.0 10.1	1022	Tr.	0	0	Few gran. casts	30%
61	87	165-60	23.3 20.9	1020	0	0	0	Pus. No casts	15%
62	71	170-90	17.4‡	1010	0	0	0	Rare hyal. casts	35% § 55% ‡
63	65	170-100	13.4 13.7	1019-22	0	0	0	No casts	50%
64	44	175-120 210-105	10.1 12.3	1014	0	Pos.	0	Rare hyal. casts	0% ?
65	59	180-115	13.4	1013	0	0	0	No casts	40%
66	52	155-90	..	1021	0	0	0	No casts	5% ?
67	79	155-85	18.5	1025	0	0	0	Few gran. casts	40%
68	74	180-100 170-95	9.5 14.0 13.7 14.6	1020	0	0	0	Occ. hyal. casts	70% ‡ 50% †
69	58	210-130	..	1002-14	0	0	0	Occ. hyal. casts	15%
70	57	170-95	6.7	1018-25	0	0	0	No casts	Uncoop.
71	48	165-95	14.0	1020-28	0	0	0	No casts	55%
72	32	160-90	9.0 12.9	1020-30	0	0	0	No casts	50%
73	57	220-140	11.8	1010	0	0	0	Occ. hyal. casts	10%
74	47	150-85	11.2 11.8	1010-26	0	0	0	No casts	55%
75	65	195-110	14.0	1012-19	0	0	0	No casts	30%
76	53	190-105 205-95	10.1 12.3	1028	0	0	0	No casts	50%
77	87	240-90 180-95	9.2 10.1 8.7	1016-18	0	0	0	Few gran. casts	65%
78	44	155-90	12.6	1010-26	0	0	0	No casts	50%
79*	60	180-90	12.3	1008-20	S. T.	0	0	Occ. gran. casts	..
80	59	165-100	10.6	1010-26	0	0	0	No casts	50%
81	75	200-110 160-110	15.4 13.2	1004-28	0	0	0	Rare hyal. casts	60%
82	47	150-95	9.2	1017-26	0	0	0	No casts	55%
83	48	180-110	11.2	1010-25	0	0	0	No casts	15% ?
84	66	225-130	12.3	1032	0	0	0	Rare hyal. casts	Uncoop.
85	43	165-100	14.6 14.0	1020	0	0	0	No casts	50%
86	63	155-100	..	1018	V. S. T.	0	0	No casts	70%
87	63	220-90 160-95	12.3 12.9	1022-24	0	0	0	No casts	50%
88	50	170-110	10.6 11.8	1025	0	0	0	No casts	55%
89	61	160-80	14.0	1020-24	0	0	0	No casts	15%
90*	73	160-95	7.3	1020	Tr.	0	0	Hyal. and gran. casts	..
91	45	160-95 190-110	15.1 15.1	1018	0	0	0	No casts	50%
92	38	170-110	19.6 18.5	1016	0	0	0	Rare gran. casts	25%
93*	42	175-100	8.4	1026	0	0	0	No casts	..

*Died

†1918

‡1917

§1916

No.	AGE	BLOOD		Spec. Grav.	Alb.	Sug.	Blood	Sediment	RENAL FUNCTION
		PRESSURE	UREA NITROGEN						
94*	81	190-90	15.1	1018-20	S.T.	0	0	Occ. hyal. and gran. casts	Uncoop.
		240-30	15.4						
			20.3						
95*	75	150-95	23.0	1012-20	0	0	0	Gran. casts	30%
			23.5						
96	76	170-80	17.6	1035	0	0	0	Few gran. casts	40%
			17.6						
97	70	270-130	14.6	1024	0	0	0	No casts	10%
98	28	250-105	15.1	1012	0	0	0	No casts	40%
			17.9						
99	48	180-120	14.0	1016	0	0	0	Occ. hyal. casts	45%
100	76	150-95	11.2	1020-30	0	0	0	Gran. and hyal. casts	60%
			15.9						
		*Died		†1918			†1917	‡1916	

Number of patients studied100
Range of ages28 to 88 years
Number over 50 years of age80
Incidence of elevated pressure in hospital..about 20%
Blood urea nitrogen determined on94
Upper normal value considered15.0-16.0 mgm.
Over 15.0 mgm.—100 cc. blood 37 (39%)
Over 16.0 mgm. 29 (31%)
Blood urea nitrogen:
 (a) Systolic value of 170 mm.
 or over 62
 Blood urea nitrogen deter-
 mined 59
 15.0 mgm. or less per 100
 cc. blood 36 (58%)
 Over 15.0 mgm. 23 (42%)
 16.0 mgm. or less 41 (70%)
 Over 16.0 mgm. 18 (30%)
 (b) Diastolic value of 100 mm.
 or over 53
 Blood urea nitrogen deter-
 mined 50
 15.0 mgm. or less per 100
 mgm. blood 30 (60%)
 Over 15.0 mgm. 20 (40%)
 16.0 mgm. or less 36 (72%)
 Over 16.0 mgm. 14 (28%)
Excretion of phenolsulphonephthalein
Number determined 89
Value below 40% 30 (34%)
Value of 40% 15 (16%)
Systolic pressure of 170
mm. or over
 (Cases done) 51
 Below 40% 19 (37%)
 40% or below 28 (55%)
Diastolic value of 100
mm. or over
 (Cases done) 44
 Below 40% 17 (37%)
 40% or below 24 (55%)
Number with urea nitrogen of
16.0+ mgm. on whom phthalein
was done 29
Elimination of 40% or less .. 26 (90%)
Number with urea figure 15.0-16.0
mgm. 8
Elimination in same of 40-50% 6 (75%)
Both urea and dye excretion done 82
Urea of 15.0 mgm. or over, dye
dye of 40% or less 23 (28%)
Urea of 15.0 mgm. of over, dye
of 40% or less 20 (35%)
Number of cases of "essential or
vascular hypertension" (urea be-
low 15.0 mgm., dye over 50%) ... 24

Urea of 16.0 mgm. or over and
Albuminuria 23
Glycosuria 4
Hematuria 2
Cylindruria 53
Deaths since study 13
Causes associated with car-
diovascular system or acute
infections 10

There have been thirteen deaths in this group with eleven autopsies. The causes of death in ten of the thirteen cases were associated with either the cardiovascular system or acute infections.

NOTES ON CASES.

1. Had hematuria, cancer of bladder.
3. Patient in bed, aphasic, confused.
17. Blood urea nitrogen determination 5 days before death.
22. Phthalein done 6 months apart. Patient still about, despite low figures.
52. Phthalein done 5 months apart.
89. Patient in wheel chair,—a case of general paresis.
93. Patient in bed,—case of tabo-paresis.



HOSPITAL RAILROAD CAR IS NEEDED IN BOSTON.
—A hospital railroad car, fitted up with every convenience for carrying wounded and sick soldiers from disembarkation points, is very much needed in Boston, according to a statement made by Major Arthur E. Austin, medical director of the Department of the North east. Pullman cars have been used for some time for this purpose, but they have been found inadequate, because stretchers cannot be taken into them.

Selected Papers.

THE "INSTINCT-DISTORTION," OR "WAR NEUROSIS."*

BY DONALD E. CORE, M.D., MANCH., M.R.C.P., LOND.,
Honorary Assistant Physician, Manchester Royal Infirmary; Physician, Ancoats Hospital; Captain, R.A.M.C.T.F.

In a paper published some little time ago¹ it was pointed out that functional nervous disorders could be divided into two groups, according as to whether they were or were not determined by environment. Hysteria, and the neurosis about to be considered, belong to the former of these two groups, both being influenced by environment, while neurasthenia or the functional nerve disorder brought about by exposure of the nerve cells to prolonged poisoning by micro-organismal products, and certain of the reflex neuroses, belong to the latter.

The group of cases now to be considered resembles the hysterias in that environment plays a dominant part in their formation, but they differ from them in two respects: (1) in hysteria the rôle of environment is indirect, whereas in these cases it is direct; (2) hysterical phenomena are based on a physiological reaction, while the group under consideration is not so based; the phenomena are pathological and subserve no useful function in the shielding of the conscious mind from unpleasantness. For all practical purposes it is a product of modern warfare; it occurs in people correctly adapted for the requirements of civilized life when such people have been, for a length of time that varies with the individual, made to live in the utterly abnormal environment produced by the war. A functional breakdown of the kind to be described is liable to happen to everyone under these conditions, the variable element being the length of time that elapses before the symptoms become manifest.

THE PRIMARY INSTINCTS.

Our normal behaviour under conditions of civilized life is to a great extent the result of the development, inhibition, and combinations of the primary instincts among each other. McDougall describes seven such instincts:

The instinct to run away under the emotion of fear.
The instinct to fight under the emotion of anger.
The instinct of repulsion under the emotion of disgust.
The instinct of curiosity under the emotion of wonder.
The instinct of self-abasement under the emotion of subjection.
The instinct of self-assertion under the emotion of elation.
and The Parental Instinct under the emotion of tenderness.

These instincts should not be looked upon as hard-and-fast and rigidly defined from each other. Nor can we imagine that in an ideally primitive organism such instincts exist in a state of elemental purity; it is almost certain that they have evolved from a functionally undifferentiated nervous system, and that their development has been determined by environment. Generally speaking, the environment in which animal and vegetable life has developed through the ages has been the same for all forms—an environment of ceaseless stress and strain, of unending activity and competition; therefore all animal life met with on this planet manifests the presence of some or all of these instincts, their combinations and associations. But they are essentially labile, and their relative strengths depend on the minor differences in the conditions of life brought to bear upon any genus or species. But in that these instincts have developed from some undifferentiated form of nerve activity, the reactions manifested when for any cause the normal play of emotion and conation is disturbed need not be distinct and specific for each instinct involved. As a matter of fact, there is, I think, a tendency for certain of these instincts to show their "resentment" under such circumstances in a characteristic manner; but this is no more than a tendency, and need not necessarily obtain.

Now, if we consider the above seven primary instincts, we see that in that their relative strengths are the result of our customary environment, and are, in such strengths, useful for our customary environment; then, given a sudden and sufficiently radical alteration in our surroundings, the developed instincts in their relative powers may be utterly inefficient for the fresh environment. Modern civilization tends to the safety of the individual without any very great trouble on his part, and the emotions of fear, anger, and repulsion are not, in such a state, called very frequently into action—at any rate, with any great intensity of tone. Much of the nerve force associated

* Reprinted from the *Lancet* of Aug. 10, 1913.

with these emotions is transferred to other conative activities, with results that are useful to the individual as long as he is living under the conditions of civilized life to which he is accustomed.

THE EMOTIONS IN WARFARE.

But under the conditions of modern warfare the emotions of fear and disgust particularly are called into frequent and violent activity. And not only is there a sudden and intense evocation of unaccustomed emotions, but the end-results and conative aspects of such emotions, so far from being given free play, are expressly forbidden, both by the idealistic conceptions acquired during childhood and early life and by vigorous punishment from fellow-men. Thus in modern warfare men are daily put into positions of imminent danger; the danger to life under certain conditions of military duty may be so great as to render death a practical certainty. In such situations men, if they are normally constituted, experience fear, and, under ideal conditions of such a position, would run away. As it is, self-respect and military discipline prevent this normal end-result, and such men proceed to fight in direct disobedience to their instinct. The helpful influence of the emotion of savage anger against their adversaries is not felt with any intensity. The disgust at the unaccustomed sights and sounds of conflict is not allowed to manifest itself in the normal way by repulsion, so that under these conditions three of the most powerful instinctive activities are distorted.

How utterly abnormal from the biological standpoint such a situation is may be inferred if we take analogous cases in the lower animal world and imagine a rabbit confronted by a hungry fox. If we further imagine the rabbit to be an idealist he might be tempted, for abstract reasons, to fight the fox, and the result would be obvious, and from the point of view of natural selection, wise. Such a situation between two such animals is inconceivable, but if in place of abstract reasons the rabbit was fighting in defence of its young, then, whatever the result, the incident would be natural and the animal would probably fight more efficiently.

If we consider the above seven primary instincts we see that they are divisible into two

groups, members of each reinforcing each other and antagonizing those of the other group. Into one of these groups fall the emotions of fear, disgust, and self-abasement, with their associated impulses; into the other anger, self-assertion, wonder, and tenderness felt for offspring. A sense of inferiority combined with disgust reinforces the feeling of fear and renders the impulse to fly more powerful; whereas fear may be diminished by anger, a sense of superiority, and especially by the activity of the tender emotion. Unfortunately the tendency of modern warfare is to give play to the emotions of the first group without developing those of the second, and also to produce emotional tone without allowing the associated impulses to come into action. The elaborate inculcation of a hatred for the enemy and of a conviction that he is fighting in defence of his hearth and home are undoubtedly useful in lessening the destructive emotions of the first group in the case of the fighting man.

In that the occurrence of any emotion should normally be followed by the actual occurrence of its associated impulse, suppression of the appropriate conative aspect is directly harmful to the proper functioning of the nervous system, and is liable to be followed by functional disorders of this system.

In the case of the production of hysterical symptoms as opposed to those of the functional disorder we are now considering, it was stated that the etiological value of the exploding shell and of the collapsing trench lay in the fact that they reinduced an emotional tone which had been at one time in the life of the patient associated with some particular incident that he had seen, or heard, or experienced. In the type of functional disorder that we are dealing with now, the exploding shell and the falling trench also are important etiological factors, but they bring about their effects in a different way; they act as the "last straw on the camel's back," and simply complete the degree of fear that is necessary to make the symptoms obtrusive. In the former case these factors act as the triggers of a specially adjusted mechanism; in the latter as the final blows in the disrupting of the normal mental mechanism.

SYMPTOMATOLOGY.

The symptomatology of the "war neurosis" differs from that of the hysterics in that it con-

forms to one type. In hysterical conditions of the pure or protective form there is found a cutting away from the consciousness of the patient all impulses coming from a region of the body which has been concerned in the transmission of unpleasant impressions; in the suggestion hysterias the diversity of symptoms and symptom groups is only limited by the limitations of the particular patient's powers of association, but in the war neurosis the diversity of symptoms is reduced; they conform to the various motor manifestations of fright, and are divisible into two groups.

In the first of these the fright manifestations are those associated with flight: pallor of the face with a rapidly beating heart and staring eyes, sometimes to the extent of exophthalmos; dilatation of the pupils and muscular excitability, spasm or tremor. Such symptoms in their essence are physiologically useful in that they put the animal into a state of preparedness for the obtaining of a desired objective—immediate removal from a given neighborhood—and this is the group that is most often met with in this form of functional nerve disorder, some or all of them. When all are present the impression on an observer of utter fright is irresistible, but in actual practice all of them are not present in the majority of cases, and then the rôle of the suppressed emotion may escape attention.

In the second group the fright manifestations are those associated with the "crouching" instinct met with in certain of the lower animals, a process which keeps such animals perfectly stationary in situations of intense and imminent danger so as to avoid attracting the attention of an enemy. Here, in addition to the tachycardia, sweating, and dilatation of the pupils, there are inability to walk, or even to move the legs at all for this purpose; occasional attacks in which the patient for a short time cannot voluntarily move any part of his body; and inability to make a noise, aphonia, whispering speech, or its modification, stammering.

THE ELEMENT OF FEAR.

These somatic signs are indicative of a "choked up" conative aspect at, and leading up to, the time of their occurrence. Now, although it is true that normally the conative aspect of an instinct follows after the emotional, nevertheless it is a fact that the per-

formance of appropriate actions tends to the production of the associated emotion. Thus, bracing the trunk muscles, clenching the hands, and setting the teeth will induce a feeling of anger; and it is to be expected that the presence of the symptoms mentioned above would reproduce the emotion of fear. This is always the case, and it is the presence of this emotion that is the deciding factor in the diagnosis of the war neurosis. These patients always at one time or another experience fear.

In the early, untreated, and acute cases the fear may be obvious and openly expressed; in addition to looking terrified, the patient is terrified, and he is terrified waking and asleep. As he improves the fear leaves him in his waking hours and is confined to his dreams, and the importance of a history of terror-dreams can hardly be overrated.

Much has been written lately on the subject of dreams and dream interpretation, and much of what has been written seems to me to be of the nature of a very elaborate structure built on very slight foundations. We do not know enough of the psychology of thought to justify detailed interpretation of dream incidents, but the emotion that is evoked by these incidents not only illuminates the general trend of the dream, but also gives important information as to what particular emotion has been excited and, if not actually suppressed, not been allowed free play during the waking hours.

The progress of a patient suffering from the war neurosis is best estimated by the intensity of the terror-dreams. In the earliest phase, when fear is felt during the waking hours, there may be a difficulty in getting to sleep at all on this account. Later, when he does sleep his rest is fragmentary, and is broken by the distress caused by his dreams. The fear-content of the dreams is so intense that it wakes him with a jerk, often with a cry; he lies for a time unable to move and sweating freely. He then drops off to sleep again, and the same behaviour is repeated throughout the night.

This phase gives way to one in which the patient on waking in the morning remembers with considerable distress the dreams that he has had, terrifying in themselves, but not sufficiently intense to wake him up. Or if he does wake up in this stage there is no free sweating.

In the third stage towards recovery the

dreams do not come every night; several nights of refreshing sleep are obtained, and only now and again does he experience the dreams; in this stage he is not awakened at all by them. It is instructive, however, to notice that in this stage, if he is touched while asleep, he wakes with a start and in distress. If in the course of treatment the patient relapses, the dreams revert to the early types, but not, in the majority of cases, with sufficient intensity to wake him.

As these patients improve, the element of fear disappears from their waking life and in the course of time from their dreams. But in the vast majority of cases the somatic symptoms—tremor, stammering, and so forth—remain, and in such cases the final phase of the disorder has been entered, the stage of habit. The habit stage is of importance, for not only is it the stage of greatest duration, but it tends to perpetuate the condition by bringing about relapses. If while under treatment anything occurs to upset a patient's confidence in the methods of treatment he is receiving, if the conviction that he is going to recover is weakened from any cause, then his mind becomes, so to speak, sensitive to his symptoms, and in that these are the result of fear they work backwards and reproduce the emotion, as mentioned above; but the emotional intensity is rarely as intense as in the earliest phases of the condition.

These two stages of war neurosis, the emotional and the habitual, are characteristic, and their differentiation is important from the point of view of complete recovery. A patient in the first stage is ill and requires hospital treatment, whereas one in the second stage is merely inconvenienced, and very often hospital treatment is the direct opponent to complete recovery.

ANOTHER TYPE OF CASE.

In Mesopotamia and in India during the first half of 1916 quite another type, from the point of view of symptoms, of functional nervous derangement was met with. This form was characterized by evident mental dullness as far as events happening round the patient were concerned. Such patients would answer questions correctly but briefly; they took no interest in any subject under discussion and never volunteered any remarks: they were per-

fectly content to lie quietly and passively; they neither read nor wrote. When given any information bearing upon their interests they either took no notice at all or dismissed the subject with some indifferent remark. Their mental state was one of inertia; there were no positive signs, and to anyone who did not know anything of the antecedents of a particular patient he would seem just rather a surly and uninterested person. Yet in the course of their convalescence they proved themselves rather the reverse.

Such patients were those who had been in Mesopotamia some time, and who had experienced the distressing monotony that a prolonged residence in that country impresses upon most people. In the early days of the campaign, everything there was characterised by this deadness—country, climate, occupation, and food. I cannot help thinking that the condition of intellectual inertia produced is the result of this utter absence of interest—is, in fact, the result of an abeyance of the emotion of wonder in the instinct of curiosity. Patients in this condition recovered quickly when sent away from the country, recovery in many cases being associated with a period of irritability.

THE SEX INSTINCT.

In view of the mass of literature, constructive and destructive, that has been published during recent years on the part played by the sex instinct in the production of functional nervous derangements, it may be advisable to discuss briefly its potency or otherwise as such a factor in the light of the evidence gained from the multitude of functional disorders that have been recently observed.

In that sexual activity is an instinct with emotional, receptive, and conative aspects, it may reasonably be supposed to be a possible source of an instinct-distortion neurosis, and in my opinion it is such a source in a limited number of cases. Its *modus operandi* is strictly analogous to that of the flight and repulsion instinct; that is, it produces a neurosis when there is an intense emotional activity with obstructed conative activity. In other words, it is not excessive sexuality nor perverted sexuality that produces the neurosis; it is compulsory abstinence from sexual activity. Given that a man with strong sexual tendencies be

forced to live in an environment where he is unable to gratify them, however healthy they may be, then such a man may in the course of time manifest an instinct-distortion neurosis. I do not think that there is any need to postulate the existence of "repressed complexes" or other subtleties; a man in this position may masturbate or fall into homosexual practices, or, what is still more important, he may fear the possibility of such a happening. The end result is the same; he worries himself ceaselessly over his condition and ultimately develops mental depression. Such men frequently tend to struggle against this depression and to overcompensate in the direction of high spirits, and their neurosis takes this form—cheerfulness and high spirits with periods of intense depression—and such patients require careful watching, for they not infrequently resort to suicide.

Of course, in the case of men and women of an hysterical type the primary incident may be of a sexual nature, but this is not in any way essential, nor is it, in my opinion, at all frequent, at any rate in this country. The sex neurosis works through the medium of worry, and it is difficult, I think, for some of us to realize how intense this worry may be. Such cases may be suitably called "isolation" neuroses, for it seems probable that in addition to enforced sexual abstinence the factor of loneliness plays a part.

The sex instinct is most emphatically not of primary importance in the production of the war neurosis.

CAUSATION.

It will thus be seen that the war neurosis as described above differs entirely in its mode of origin from hysteria. The latter condition clinically is the result of an improper suppression of a tendency that is inherent in every one of us and which is determined by our position in the scale of evolution; it is manifested as a result of an emotional activity which is normal as far as the emotion is concerned. The former is the result of an improper strain on the emotions themselves, leading to a wrongful emotional tone and to distortion of the bodily mechanism which is associated with the conative aspect proper to the emotion concerned. To use an analogy, there is all the difference between the two conditions that there is be-

tween the emptying of a reservoir by raising the sluices in the dam and by smashing the sluices or the dam itself.

The actual method by means of which emotional activity becomes manifest as somatic phenomena is an interesting problem that does not concern us here; the work of Cannon and others indicates the sympathetic nervous system and certain of the ductless glands as important connecting links. It is important, I think, to exclude from the pathology of "shell shock" (which is a term generically applied to certain hysterical and instinct-distortion phenomena, and which is about as applicable to either as "cold" or "chill" would be to all varieties of inflammation of the lungs) any lesion which gives rise to organic clinical signs. Cases in which, after death, hemorrhages and compression lesions are found are better called "shell disease," after the principle that distinguishes caisson disease. The different functional disorders included at present under the name of shell shock should be sharply separated from those in which organic lesions can be diagnosed during life.

In this way, then, a shell exploding so close to a man that the violent alterations in the air-pressure brings about cerebrospinal hemorrhages and other disruptive effects would produce "shell disease," whereas the explosion that completes the measure of emotional stress in the manner described above, and which brings into eminence a condition that has long been incubating, produces "shell shock," so-called. In the presence of signs of organic disease shell shock should not be diagnosed, but shell disease. Of course, there are bound to be cases in which the diagnosis between the two conditions is of extreme difficulty, but from the point of view of both prognosis and treatment it is well to go on the principle of diagnosing shell shock only when a thorough examination reveals no signs of organic disease, and shell disease when such signs are present.

DIAGNOSIS.

The diagnosis of the instinct-distortion, or war neurosis, is, as a rule, easy. In the absence of signs of organic disease it may be made in the case of any patient who shows symptoms of nerve irritability and in whom, at one time or another, the element of fear is present. In the event of such symptoms ex-

isting in a patient who shows no signs of fear, either in his waking hours or in his dreams, one of two conditions may be present—the war neurosis in the late or habit stage, in which there will be a history of terror-dreams at the beginning of the illness; or a suggestion-hysteria, in which case no such history is obtainable. Naturally, leading questions should not be asked; the patient should merely be asked if he sleeps well, or if he slept well at the time of onset of the breakdown.

It sometimes happens, though not in my experience very commonly, that an instinct-distortion neurosis and a pure hysteria exist in the same patient.*

I recently saw a young soldier, a private, who was under treatment for herpes zoster. The condition affected the left side of the chest in the area of the fourth dorsal segment. While under treatment he quite casually mentioned that he had been recently suffering from what he called “attacks,” after he had been in bed for a little time and when he was going off to sleep. In these attacks, which lasted only for a minute or so, he lost his sight, and all power of making a noise; he was absolutely unable to move a limb; he came to himself sweating, and, as he described it, “sick with fright.”

The emotional tone of the incident, the inability to move or to make a sound were quite characteristic of the instinct-distortion neurosis, the symptoms conforming to those of the second group mentioned above, but the temporary blindness was difficult to account for on the grounds of an instinct-distortion neurosis.

Looking through some past notes of the case, however, the following entry was found: “The patient states that what worried him most when in Flanders were the horrible sights, to which, unlike most of his companions, he could never get accustomed.” The amaurosis, in fact, was the result of a pure or protective hysteria, and the condition of the patient was due to the existence of the two types of functional nerve disorder.

The actual determining cause of the attacks was the sensation of his heart beating as he became drowsy; the trouble did not arise until

he began trying to lie on the left, or herpetic side. The condition of the nervous system was quite slight and readily passed away; he had not been invalided for it; but in the event of his not having had herpes zoster when he did, it would be a matter of interest as to which functional derangement, the hysterical or the instinct neurosis, would have become obtrusive first. Probably the hysterical, in which case he would have been invalided for blindness.

The above case is of interest in that it indicates the lines along which an approach to the diagnosis should be made. Any particular symptom should be investigated from the standpoint of its being or not being, as the case may be, useful to the individual as a means of escape from his enemies, or of its being a derivative of such a useful manifestation. Thus, inability to move or to make a noise is obviously useful to the hare when trying to avoid attracting attention, but blindness is not, for it would militate against the final rush when the animal realized that attention had been attracted; it would prevent this realization to a great extent. Therefore the blindness could not form part of the instinct-distortion neurosis, and further examination into the attitude of the mind of the individual to his surroundings in the fighting line will ultimately bring into prominence some association with sight—either, as in the case just mentioned, distressing sights, or, if these are not complained about, some childish association in which the eyes played a part.

TREATMENT.

The treatment of the instinct-distortion neurosis is, in its essence, simpler than that of the hysterias, and more satisfactory. This, of course, follows from the fact that in the latter conditions symptoms are treated, while the underlying condition remains; the patient is hysterical to the end of his life. In the former, however, the harmony of the nervous system can be, and as a rule is, fairly easily restored, the difficulty experienced in practice being the persistence of certain symptoms as habits, and even these are more readily removed than would at first sight appear probable. In the course of time, when all ideas of the war as an imminent factor have disappeared, the more troublesome of these symptoms will be done away with owing to their very obtrusive-

* As a general rule, in a hysterical individual the hysteria symptoms manifest themselves before the emotion neuroses have had time to develop; this is, of course, intelligible on the theory that the hysterical person develops his condition to protect his consciousness from emotional distress. The instinct-distortion neurosis may be colored by a suggestion hysteria, but in such a case the greater includes the less, and the case should be looked upon as an instinct-distortion neurosis.

ness, while the less troublesome will persist only as long as they do not interfere with the patient as a useful individual in the surroundings in which he works.

Treatment falls necessarily into two groups according as to whether the patient is or is not ill. These two groups correspond fairly accurately to the phases mentioned above, the active or terror phase of the illness and the habit phase.

There are two fundamentally important principles in treatment that should always be kept in mind. The first is that the patient must be removed as quickly as possible from the environment which was responsible for the condition—he ought to be taken right away from any focus of fighting; and the second is that from the very beginning he ought to have it impressed upon him that he is going to get completely cured. The removal from the combatant atmosphere is so obvious and so usual that its importance as a method of treatment as well as the light it throws on the origin of the condition is in danger of being overlooked.

When such a patient has arrived at the "ultimate base" wherein the remainder of his treatment is to be effected, if he is still in the active stage he should be kept for the most part in bed and in a ward that is quiet. It is inadvisable that he should be alone; I think that a ward with two other patients in it forms the best environment. Here he should stay until he is able to sleep without being waked up frequently by his dreams. In the early stages, when he is unable to sleep at all, I have found the best results with trional, 10 gr., with or without aspirin, and diminished gradually as the tendency to sleep improves. During this period it is well to make him realize that he has power over his legs by making him take a few steps every day in the ward, but as long as he is definitely "ill" with his condition he ought to spend most of his time in bed. He should be seen frequently by the medical officer in charge and should be constantly reassured as to his complete curability and encouraged to look upon himself as improving from day to day.

As the sleep improves and the dreams lessen in intensity he should be made to leave the ward for a short time each day and mix with the other patients, and then the more detailed

treatment may be instituted. It will be found that patients manifest one, some, or all of the following disabilities: speech defects, tremors, disorders of gait, mental depression, irritability of the sympathetic nervous system.

As regards *speech defects*, the principle of treatment may be summed up in the words, "careful and painstaking reëducation." At the Seymour Park Military Hospital in Manchester we have been fortunate enough to obtain the assistance of the officials of the Institute for the Deaf and Dumb in the treatment of cases of disordered speech, and the results have convinced me that these patients are the most readily curable of all. Definite classes are formed, and the men are shown the position of the lips in the articulation of the vowels and their compounds. They are taught breathing exercises, are made to read aloud, and are discouraged from speaking to fellow-patients while they stammer. The result in the majority of cases is little short of marvellous, but, as in all cases of the instinct-distortion neurosis, treatment must be painstaking and to a large extent individual, and a very considerable degree of patience is required.

Similarly, in the treatment of *disorders of gait*. In the event of there being complete inability to move the legs at all, the patient should be made to sit on the edge of the bed and "feel the floor with his feet." Often enough this produces clonic spasms of the legs and the patient at first can practice only for short periods at a time, but if he is made to practise regularly and is systematically encouraged these spasms lessen, and he then begins to apply pressure to the floor with the feet. He should then be supported and made to stand, and to take a step or two; in the course of a very short time with support he will be able to get over the ground easily. The support should then be lessened, and it is well to remember that it is very much more easy to err by keeping the support, orderly, crutches, or stick, too long than not long enough. As soon as the patient can move fairly well when supported by an orderly he should be given crutches, and when he realizes that he can manage these, he should be made to give them up and take to a stick. The same principle is repeated with the stick; he should discard it as soon as he is able to use it with comfort. During the orderly, crutch, and

stick stages he should be made to take exercises of precision over a track marked out on the floor. Two lines are painted on the floor about three feet apart, and foot-marks are indicated between them; the patient is told to walk between the lines, putting his feet on the marks. The proper use of the thigh and leg muscles should be insisted upon. These exercises may be associated with the use of a treadle machine.

Tremors also should be treated with exercises of precision. The coarse, clonic spasms of the early stages of the condition readily subside as improvement in walking is attained—and the less the patient's attention is drawn to the hands and arms in this stage the better. In the stage of the fine tremors he should be made to use his hands and arms in the way that best appeals to his interest; he should be made to construct models with a set of child's bricks or, in the later stages, with some of the "Meccano" outfits. Or he may be encouraged to manipulate chessmen or to do crochet work. The extent of useful exercises for tremors in the later stages is very nearly endless, and it requires only a little imagination on the part of the medical officer, sister, or nurse to suit a patient's requirements and, in addition, to make the exercises interesting. At the same time, these exercises should be carefully watched; any tendency on the patient's part to look upon them as a means of getting through the day apart from any therapeutic value must be checked; also, as soon as he has become proficient at one set of such exercises he should be given another and more delicate set. And when all signs of mental disturbance have disappeared and he realizes that he can do useful work with his hands, then the sooner he is discharged from the hospital atmosphere into some form of civil employment the better.

An interesting symptom-group that occurs in certain of the patients suffering from this form of neurosis is *mental depression*, and often enough this becomes obvious only in the later stages of the disorder. Such depression may be due to the troublesome nature of the symptoms for which, primarily, a patient is undergoing treatment; in such a case it subsides as the symptoms improve and requires no special treatment. In other cases it is present in the absence of any obtrusive somatic symptoms.

and then treatment should proceed along two lines—"therapeutic conversations" and employment. Therapeutic conversations should always be added to whatever form of treatment any patient with the instinct-distortion neurosis is receiving, but when there is well-marked mental depression they become of paramount importance. In such conversations, as far as possible, the "doctor and patient" atmosphere should be avoided, and in most cases in my experience psycho-analytic methods are not needed. The patient should be treated in a friendly manner, and in the course of time definitely asked what is troubling him. If sufficient tact has been used I find that there is usually very little difficulty in getting him to say what is on his mind; often enough, unfortunately, the cause of the depression is perfectly reasonable, and as far as medical treatment is concerned is not removable. And of all the causes domestic worries are the most potent. In other cases the depression is the result of disabling symptoms that are irremovable. In one case I saw profound depression was caused by gross nystagmus, apparently the result of hemorrhages round the fourth ventricle and aqueduct; the case was one of shell disease. Depression caused by obtrusive symptoms is best treated by giving the patient occupation in experimental workshops; work which is not specially interfered with by his condition is chosen for him, and he is encouraged to make himself proficient in it. The more he is made to realize that he is not utterly disabled the more the depression lessens, but in some cases we have to admit that the depression is justified.

The *tachycardia* and other signs of irritability of the sympathetic nervous system are best treated by graduated exercises. It is an unfortunate fact that patients suffering in this way are extremely difficult subjects to convince that there is no organic disease of the heart: in the mind of the average patient palpitation, praecordial pain, and giddiness are incontrovertible signs of "heart disease." Such patients are best treated in hospitals specialized for heart conditions, in which the whole atmosphere of the patient is directed towards his realization that his symptoms are in no way dangerous, and that by training they will cease to hinder his activities in after life.

NOMENCLATURE.

In conclusion, it may be permissible perhaps to discuss the nomenclature of this condition, the instinct-distortion neurosis. The usual name, shell shock, is unfortunate, because it covers cases that are hysterical as well as those that are not, but which are the results of a strained emotional activity. But shell shock covers neither of these conditions completely; the most characteristic cases of the instinct-distortion neurosis may give no history of shell shock. On the other hand, what soldier patient that has been in the front line for any time has not been in the sphere of bursting shells? The name "shell disease" is applicable, for it is the direct disruptive effect of the explosion that produces the lesions of that condition, but shell shock, as a name applied to functional nervous breakdown in soldiers, cannot be justified.

Exposure to the sights and sounds of the modern battlefield may bring on hysteria manifestations or symptoms of the instinct-distortion neurosis. This latter name is clumsy, and "war neurosis" is too general a name to be applied to this disorder.* The more specific name "terror-neurosis" is perhaps a little invidious at the present time, and I would suggest calling the condition described in the foregoing pages "dysthymia" (*δυσ*, impeded; *θυμός*, emotion).

We could then sum up the state of affairs as regards the factor of the exploding shell thus: The neuroses usually met with as results of the present war are hysteria and dysthymia. Neither is exclusively the result of the war, but of the two, dysthymia is the nearer approach to a specific war neurosis. In neither need there be a history of a bursting shell or a collapsing trench; such a history may be present in both. The bursting shell and the collapsing trench have no specific value in the determination of these neuroses; they possess an adjuvant value only, and this value may be obvious or masked. Only in "shell disease," where there are demonstrable organic lesions, have these factors any specific value, and the resulting condition is not functional.

* I have recently seen a most characteristic example of this neurosis in a woman, resulting from physical fear of being confined. The neurosis became evident shortly after marriage and became acute during pregnancy.

REFERENCES.

¹ The *Lancet*, 1918, i, 365.

Book Reviews.

Vagatonia: A Clinical Study in Vegetative Neurology. By DR. HANS EPPINGER AND DR. LEO HESS. Translated by WALTER MAX KRAUS, A.M., M.D., AND SMITH ELY JELLIFFE, M.D., Ph.D (Second Edition. Nervous and Mental Disease Monograph Series, No. 20. 8vo. pp. 93. New York: Nervous and Mental Disease Publishing Company. 1917.

This book, while not a large one, consists of a clinical study of the vegetative functions of the nervous system. While the influence upon this portion of the nervous system from the secretions of the endocrinous glands is still largely an unknown field, yet the disturbances of organ functions in various nervous diseases are so frequent and varying that a new point of view of the origin and meaning of these disturbances cannot help being stimulative. This book gives evidence of wide reading and study, and as one of the best studies in this portion of the field of neurology which has its chief bearings in the wider field of internal medicine, of which neurology is an important part, deserves careful reading by all serious students of internal medicine.

Study of Organ Inferiority and Its Psychical Compensation. By DR. ALFRED ADLER. Nervous and Mental Disease Monograph Series, No. 24. 8vo. pp. 86. New York: Nervous and Mental Disease Publishing Company. 1916.

The author has here presented a theory of the inferiority of an organ, or organs, from various causes, which he considers as due to a variety of factors,—heredity and others, which have a large influence in determining the development of a great number of organic diseases, tuberculosis and other infectious diseases, carcinoma, and disturbances of function. Then he considers the effect of compensation of this original inferiority in various ways, with especial stress upon the psychic effect, both in the direction of repression and the development of psychoneuroses, and of compensation in psychical directions. He finds in his studies in particular confirmation of Freud's theories of the origin of psychoneuroses.

While the arguments are stated broadly, and the clinical cases adduced in support of these views are given in outline only, and seem far from convincing, the book is suggestive, though it can hardly be considered as even proving much which favors the Freudian theories of the psychoneuroses.

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PROGRESS OF INFLUENZA EPIDEMIC.

THE epidemic of so-called "Spanish" influenza is still spreading in Boston and in the neighboring districts and towns. Unfortunately, pneumonia has developed in many cases and the mortality list is at present higher than at any previous period since the outbreak of the epidemic. Although every possible precaution is being exercised, the situation has become serious. Local hospitals are already crowded, and the illness of many of the doctors and nurses is resulting in unusual strain upon those who are still able to help in combating the spread of the epidemic.

On September 21, between the hours of noon and 10 o'clock at night, there were reported in Boston 18 deaths from influenza and 5 from pneumonia. Because of the increase in the number of cases, the Department of the Northeast has taken over the Robert B. Brigham Hospital for treatment of patients. This will

provide 300 additional beds. At the Boston City Hospital there are 200 patients. It has been necessary to call out the full corps of enrolled nurses to aid in checking the malady. One hundred and six Red Cross nurses have been added to the available staff in the Boston Metropolitan District.

It is possible that the weather of the past week may have been partly responsible for the increased death rate, and a brighter aspect may be expected with the return of more favorable weather conditions. Dr. Walter L. Burrage, secretary of the Massachusetts Medical Society, is reported to have said, in reassuring the civilian population:

"There is no danger that the civilian population of Boston will be left without physicians because of the demand made by military authorities. The hospitals and the medical schools are the only places where any difficulty is experienced so far.

"The staffs of the medical schools have been seriously depleted by the demands for war service, and the same is true of the hospitals. Every doctor in the city has all he can possibly do to take care of his patients, but the epidemic would be no less severe if the doctors were all at home."

The death rate remains normal although the number of cases has increased. The following report has been made since Saturday, September 14:

	INFLUENZA	PNEUMONIA
Saturday	9	12
Sunday	15	9
Monday	23	5
Tuesday	28	13
Wednesday	30	13
Thursday	32	10
Friday	42	10
Total	179	72

At Simmons College, there have been 12 cases of influenza, none of which have been fatal.

There has been a slight decrease in the number of cases in the Army and Navy, and it is believed that the epidemic is now under control. At Camp Devens, there are now approximately 6000 cases of grip at the base hospital, and extra nurses have been summoned to take care of the men. The cantonment has not been quarantined, however, although passes, except in cases of urgent necessity, have been refused. Twenty deaths were reported on September 21. Among the Springfield troops, 150 cases have developed.

At the Naval Radio School in Cambridge the epidemic has been checked and the quarantine has been lifted. At Hingham, the number of cases is increasing, and 48 cases were reported on September 20. Eight deaths from Chelsea Naval Hospital have been reported. At the William A. Brooks Camp, Corey Hill, Brookline, 153 cases are now under treatment. Twenty-five hundred sailors from Commonwealth Pier have been sent to the camp at Framingham, in order to prevent the spread of the epidemic among these men. On September 21, the reports from camps in Greater Boston showed the following number of cases:

Hingham, 48; Boston Section, 25; Deer Island, 13; Cambridge Aviation Detachment, 16; Navy Yard and Hingham Ammunition Depot, 11 each; Radio School and Little Building headquarters, 8 each; Fore River, 2; Receiving Ship, 5; Bumpkin Island, Wakefield Rifle Range and Cadet School, one each.

The total number in the First Naval District has been 2858, with 97 deaths. In the Second Naval District, 5 deaths were reported on September 21. The epidemic has reached Camp Upton, New York, Camp Dix, New Jersey, and Camp Lee, Virginia. Thirteen cases have developed at Camp Humphries, Accotink.

Reports from places outside of Boston show an increased spread of the epidemic. Lynn has reported 3000 cases. There have been 5 deaths in Arlington and 3 in Weymouth. Haverhill has had 300 cases, and a schoolhouse has been converted into a temporary hospital for relief of the patients. There have been 20 deaths in Brockton and 3 in Malden. Milford is caring for more than 100 cases and Fitchburg for more than fifty. New Bedford has reported 87 new cases and 1 death. In Quincy the situation is serious. About 2000 men at Fore River and Squantum are ill. The Neighborhood Clubhouse in Quincy has been utilized for a hospital and extra physicians, Red Cross nurses and chauffeurs have been called. Six deaths have been reported. In New York, there have been 184 cases of influenza to date.

All the penal institutions in Massachusetts have been closed to visitors during the prevalence of the epidemic.

The schools have been closed in Bridgewater and West Bridgewater, Somerville, and Marblehead. There have been 153 cases reported in Boston public schools, which were closed Tuesday, September 24. In regard to the sub-

ject of closing the schools, Lewis R. Sullivan, member of the Governor's Council from Boston, is reported to have expressed the following opinion:

"Last year the School Committee closed the schools in order to save coal, and it seems to me that they should now be closed to protect the health of the little pupils who don't know how to protect their own health.

"The Board of Health has stated that the children should be given all the fresh air they can get, yet the School Committee restrains them for five hours a day in school rooms that generally are inadequately ventilated, and it is a serious question whether the ventilating systems do not carry the germs of this disease about the school rooms, so that pupils who do not actually come in contact with those having influenza may contract it in this way.

"I am told that in one room where sixty pupils are enrolled, only twelve are in attendance this morning, showing either that the others are ill or that their parents have the good sense to keep them out of school. Under such conditions I believe that the only sensible course before the School Committee is to order all of the schools closed at once."

The following statement has been issued by Bernard W. Carey, epidemiologist of the State Department of Health:

"Influenza is a markedly infectious condition, being perhaps one of the most readily transmitted by personal contact of any of the infectious diseases. The incubation period is apparently from a few hours to four days. Our greatest means of prevention and of checking this outbreak appears to be the isolation of all known cases and the isolation of all persons who show symptoms of a beginning coryza with its inflamed eyes, discharging nose and symptoms of a beginning 'cold.' To make this effective, all persons who show any of the above symptoms should be immediately sent home from their places of employment.

"We advise that all persons ill with influenza should receive competent medical advice, and should remain in bed until fully recovered from their illness. It is essential that people avoid all places where overcrowded or unsanitary conditions might exist, and to avoid, as far as possible, mingling with people who are coughing and sneezing, or who show signs of a catarrhal inflammation of nose or throat."

Surgeon-General Rupert Blue of the United States Public Health Service, has asked the Division of Medicine of the National Research Council, to determine the exact nature of the microbe, or microörganism, which is causing the so-called "Spanish" influenza.

To get prompt action Surgeon-General Blue has addressed a letter to Major Richard M.

Pearce, chairman of the National Research Council, which is represented in all the States, and has telegraphed all the state health officers to send to the public health service here all information as to the disease in their jurisdiction and also the appearance of it at any new center or foci.

Surgeon-General Blue has recommended dichloramine for use in destroying the germs of so-called "Spanish" influenza.

A circular received by a Boston firm of wholesale chemists, described the new preventative as follows:

"Dichloramine is a powerful antiseptic and germicide, introduced by Dakin and Dunham for use in oil solution direct, or to be applied in the form of a spray.

"Dichloramine should be dissolved in chlorocane, Dakin's single solvent. This is an odorless and tasteless oil prepared by chlorinating hard paraffine wax.

"Dichloramine has been shown to be a powerful and effective germicide, usable in high concentration and giving prolonged antiseptic action. It is employed as a spray or by direct local application in the treatment of infected wounds and injuries, also for prophylaxis and treatment of infections of the nasopharynx."

A warning to laymen bent on using germicide is contained in a circular of caution sent to all druggists by a well-known chemical supply house.

The warning to prospective users of dichloramine reads:

"When you have inquiries for dichloramine, kindly inform the parties that this must be used in conjunction with chlorinated eucalyptol or chlorocane. This product itself is not for extemporaneous use, as it is necessary to have either one of the two articles mentioned as a vehicle or holding medium.

"We think it would be well to advise others than retail druggists that this should be dispensed on physicians' prescriptions only."

As a result of this advice, there is now a shortage of dichloramine in Boston.

Because of the epidemic, the Red Cross-Belgian Relief clothing drive has been postponed. The drive was to have been made by the Boston Metropolitan Chapter of the American Red Cross for the Belgian Relief, but it will be deferred until the civil, military and naval authorities have the influenza sufficiently under control to make it safe to collect clothing needed for the hundreds of thousands of sufferers in Belgium.

All plans for the drive were perfected and the teams were to continue their collections

during the week. The organization will be retained and when it is considered judicious the machinery will be set in motion under the direction of Eliot T. Putnam, chairman of the campaign.

Dr. Richard G. Wadsworth, chairman of the Education Department of the Boston Metropolitan Chapter and medical adviser of the chapter, considered it inadvisable under the circumstances to have the collection made at this time and conferred with Dr. William C. Woodward, chairman of the Boston Board of Health, who agreed with him that it might not be safe to solicit clothing now, though he was willing that it might be continued if it could not conveniently be delayed.

It is to be deeply regretted that the epidemic has caused the deaths of many physicians. Among those who have lost their own lives in attempting to save the lives of others are included: Dr. F. J. Denning, South Boston; Dr. S. N. Hunting; Dr. Philip Buckley, South Boston; and Dr. Marland Eaton, Beverly.

PALEONTOLOGICAL EVIDENCES OF THE ANTIQUITY OF DISEASE.

THE September issue of *The Scientific Monthly* contains an unusually interesting and enlightening article entitled, "Paleontological Evidences of the Antiquity of Disease," by Professor Roy L. Moodie. Investigation of the pathological conditions among fossil animals has shown that disease began during the great Coal Period. Both the new and the old world yield evidences which lead one to conjecture that an underlying fundamental condition must have been responsible for the ingress of disease and the consequent breaking down of the natural immunity which has previously protected both animal and plant life from the devastation of disease. So far as we know, animals of the Paleozoic and Proterozoic periods were free from disease.

Pathological conditions among fossil animals were first discovered in the enlarged stems of fossil erinoids. This condition was caused by the parasitic action of myzostomids. During the Carboniferous age, there was, also, a widespread development of fungi and bacteria, which were probably influential in the spread of disease. These forms take the form of coccoids, bacilli, diplococcoids, and micrococcoids, and were found in the fossilized feces of

fishes in ancient wood and coal. Caries in the teeth of certain extinct fishes has also been discovered.

In the Permian period, the earliest known fractures occurred. A left radius of a primitive reptile, *Dimetrodon*, presents a well-marked case of fracture with subsequent healing, although there is still some intermediary callus. In the same beds, a fractured rib was found. The Jurassic of England furnishes the first evidences of necrosis and a suggestion of metastasis. These conditions were seen in the pathological nature of the bones of a crocodile, *Metriorhynchus*. In the Comanchian period, interesting lesions, resembling a modern hemangioma, were seen among dinosaurs.

Among the aquatic vertebrates of the Cretaceous period, there appears a condition comparable to modern cases of osteomyelitis. For the first time in the history of paleo-histology, perforating fibers of Sharpey are seen running through the sections. An example of osteoma is furnished by a dorsal vertebra of *Platycarpus*, a monosaur from the Cretaceous of Kansas. A radius of another monosaur shows on the proximal surface an extensive necrosis. A condition similar to modern alveolar pyorrhea was found in a monosaur jaw. The prevalence of disease reached a climax in the monosaurs, dinosaurs, pleiosaurs, and turtles of the Cretaceous period, and with the opening of the Tertiary the incidence of disease went sharply down, to rise again with the rise of mammalian life and reach a very high point during the Pleistocene.

The extinction of the large groups of reptiles at the close of the Cretaceous doubtless brought about the disappearance of many forms of disease which attacked those animals. Some forms of disease, however, persisted, as may be seen in cases of caries and alveolar osteitis with the associated forms of necrosis. The bones of a creodont carnivore from the Washakie Eocene show considerable exostoses and hypertrophy, suggesting modern conditions of nutritional disturbances resulting in the softening and lightening of the bones as in osteomalacia.

Mammals of the Oligocene period suffered from both disease and injury. The Ologocene dog, *Daphaenus felinus*, presents on the inferior portion of both radii a symmetrical tumor-like mass, the only example of duplicate exostoses in fossil animals.

In the Miocene period, a three-toed horse from South Dakota may be mentioned as an example, showing the nature of disease in this period. Indications of actinomycosis and alveolar osteitis, with the formation of some osteophytes, have been found in the bones of this animal.

No new ideas of pathology have been presented by the study of these ancient lesions, but the subject increases our vision as to the possibilities of medical history and extends our knowledge of the occurrence of disease back into geological time for many years.

THE DEATH OF DR. LEEN.

THE present epidemic seems particularly fatal to physicians. Already nearly a dozen have died in and around Boston. Among them the passing of Thomas F. Leen, who died at the Carney Hospital, September 17, demands more than ordinary notice.

Dr. Leen was widely known, both as a good citizen and a wise physician. He was barely forty-one years old, and had been sick only a week. Like many others, he had worked incessantly and had been careless of one thing only—his own health. Apparently, he did not follow himself the advice which he had often given to his patients,—to take at least a brief rest each year, and to guard against long-continued strain and worry.

His untimely death emphasizes two points, each of importance. The first is almost a commonplace, that every man and woman over thirty should have a thorough physical examination at least once in two years; and those over forty-five, as often as once a year. This rule applies to physicians quite as definitely as to the laity; if it were followed there would be fewer deaths, fewer cases of physical collapse, less illness and a stronger generation.

The second point is that Dr. Leen stayed in Boston and overworked, when his personal preference would have been to accept a commission in the Medical Corps of the Army. He felt that his duty lay in Boston. It is a fair surmise that if he had been in service, he would be alive today; almost without exception the discipline and regular life in the Army have benefited medical men, and his duties would have been less arduous in service than at home. He lost, in common with other heads

of hospital medical services, a large percentage of his brightest and most able assistants, and the volume of work increased immensely.

His work was essential to the community, and he and the others who are equally essential, should in all justice be put in uniform by the Government. The uniform is an honorable dress; it lends authority, makes for efficiency, and is a reward of merit. It carries with it the recognition of the country for work well done. Dr. Leen deserved it, but died without it; and his name does not appear where it should, on the roll of those who served their country faithfully. Let us trust that this will be remedied in the near future.

Dr. Leen leaves a kindly memory. Personally, he was quiet, cordial, earnest, modest and affectionate. He could not have had an enemy; and all of his acquaintances became his friends. Professionally, he was a careful, capable, thorough physician. He blended knowledge with humanity. He could sympathize without becoming sentimental. It was his lot to experience the pathos, and the satisfaction, of dying in the hospital for which he had worked so faithfully. He leaves to his family a gentle heritage and a good name, which is rather to be chosen than riches: to his hospital the record of unfailing duty and unstinting service; to his friends a remembrance of kindness and loyalty; to the profession a standard of conscientious, unostentatious medical practice, to which we all may aspire.

MOBILIZATION OF WOMEN PHYSICIANS FOR ANESTHETIC SERVICE.

EVERY effort is being made to keep war surgery at top-notch efficiency and to provide every wounded soldier with safe, rapid and comfortable anesthesia both at the Front and in the base hospitals.

In this connection the following telegram is self-explanatory:

Dr. F. H. McMechan, Avon Lake, Ohio.

Washington, D.C., September 18, 1918.

Proceed at once to secure qualified women physician anesthetists under 45 years of age, of mental poise, as well as young women graduates who are competent for such service.

(Signed) DR. FRANKLIN MARTIN (per).

DR. EMMA WHEAT GILLMORE,

Chairman Women Physicians Committee,

Council National Defense.

Medical Section.

Those women physicians who are qualified for anesthetic service or who are competent to be intensively trained are requested at once, to get in touch with,

DR. F. H. McMECHAN, *Secretary*,

Interstate Anesthetists,

American Anesthetists,

Avon Lake, Ohio.

MEDICAL NOTES.

NATIONAL TUBERCULOSIS ASSOCIATION.—A recent Bulletin of the National Tuberculosis Association contains a significant article comparing the death toll of tuberculosis and war, by Dr. Livingston Farrand, Director of the American Commission for the Prevention of Tuberculosis in France. Dr. Farrand's study of conditions in France makes it possible for him to predict the probable increase of tuberculosis among our civilian population, through the indirect effects of the war. He discloses conditions revealed by the draft, and makes an urgent appeal to America to exert her best effort in promoting anti-tuberculosis work. His statement follows:

"Though the sacrifice of lives in the present war has been so enormous as to make all previous losses on the battlefield appear slight in comparison, it nevertheless appears to be a fact that this frightful war mortality does not greatly exceed, and indeed may be exceeded by, the deaths from tuberculosis under ordinary conditions, if equal areas and periods be considered. In the four years since the war began, the total number of deaths from tuberculosis among the civilian population and in the armies of all the countries engaged has at least approximated the total number of soldiers killed in battle.

"The significance of this fact for America, now and after the war, is what I want to point out before returning to France. Though thus far our own casualties in the war have, of course been small, it is unlikely that any future American losses, after our army at the front has reached the full proportions in view, will surpass, for a given period, the total of deaths from tuberculosis among our civilian population. Actual deaths on the battlefield, or as a result of wounds, and not total casualties, are referred to in this comparison. While the total British casualties, for example, were 17,336 for the week ending July 6, actual deaths were 2736, or only 15% of the total. Each year the death toll from tuberculosis in the United States is between 150,000 and 200,000. This disease leads all others in mortality.

Approximately 40,000 men, it would appear from the statistics available, were rejected in the first draft as tuberculous. Many, if not most, of these men have been going about freely in the community not yet aware that they were afflicted with the disease, and that they were sources of danger to others, especially children. Some have known that they had the disease, but have neglected their own condition and their responsibility as regards the health of their associates. Of the men who passed the draft boards, another 10,000, following more searching examination by medical officers of the Army, were subsequently discharged on account of tuberculosis, giving a combined total of 50,000.

While the war has thus effectually disclosed conditions which existed before, rather than produced these conditions, it is also true that in indirect ways it has substantially increased the tuberculosis problem in the European countries involved. I refer not to the situation in the armies, where the mode of life often tends to reduce the extent of this disease, but to conditions which affect the civilian population. Increase in the price of food, clothing and housing, has exceeded general increase in wages. Consequently, among the lower wage groups, who comprise the mass of the population, food supply has diminished in both quantity and quality. This has produced a state of under-nutrition, which in turn has reduced physical resistance to tuberculosis, particularly among children. Among adults, mental stress and worry have lowered general vitality and increased susceptibility to the disease. These indirect effects of the war are clearly evident in France, and will doubtless become increasingly evident in America as the war continues.

WAR NOTES.

WAR RELIEF FUNDS.—The French Wounded Fund has reached a total of \$405,882.19 and the Serbian Fund now amounts to \$126,329.59.

MALDEN PHYSICIAN AWARDED CAPTAINCY.—Dr. Harvey H. Howard of Malden has received a commission as captain in the Army Medical Corps, and will leave for Camp Upton on October 1. He was formerly a professor in the Rockefeller Foundation at Pekin, China.

APPOINTMENTS IN THE MEDICAL RESERVE CORPS.—The following appointments in the Medical Reserve Corps have been announced:

Captains. Charles A. Riley, Allston; G. S. Allen, Lawrence; H. C. Colgate, Rockland; E. Flagg, Boston.

First Lieutenants. Paul Appleton, Providence; J. R. Agnew, Chicopee.

13,347 NURSES IN WAR SERVICE.—Total enlistments of nurses through the American Red Cross from the beginning of the war to August 1 have been 13,347, against an estimated requirement of 27,000 before January 1, 1918. The States of Connecticut, New Jersey, and New York have led in recruiting.

To assist the recruiting, the country has been divided into thirteen districts, with definite quotas assigned.

GRAND CENTRAL PALACE HOSPITAL.—In view of the probability of transferring the Grand Central Palace to the Government for use as an army hospital, all tenants were ordered to vacate on September 15. The structure is ten stories high, each story containing 50,000 square feet of floor space. It has been used chiefly for big expositions and bazaars.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 21, 1918, the number of deaths reported was 491, against 248 last year, with a rate of 32.64, against 16.74 last year. There were 60 deaths under one year of age, against 44 last year.

The number of cases of principal reportable diseases were: diphtheria, 33; scarlet fever, 11; measles, 6; whooping cough, 23; typhoid fever, 4; tuberculosis, 53.

Included in the above were the following cases of non-residents: diphtheria, 2; whooping cough, 1; tuberculosis, 5.

Total deaths from these diseases were: diphtheria, 2; measles, 1; whooping cough, 7; tuberculosis, 29.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 2.

QUINCY HOSPITAL.—The Quincy City Hospital, which since its institution in 1889 has been operated as a private corporation, will be taken over by the city, according to plans being made by the Quincy City Council.

WORK OF BABY HYGIENE ASSOCIATION IN JULY.—There is a large increase in the number of babies that are admitted to the Baby Hygiene Association for care, according to the report of Dr. J. Herbert Young, director of the Association, who declared at the regular monthly meeting of the trustees that during July the number cared for was 3428, or about

900 more than in July, 1917. Weekly registration is increasing more rapidly than in any previous year and has reached 3329. There are three more stations than last year, and all but two stations show an increase. East Boston in July cared for 518 in two stations, against 322 in one station. Two stations, North End Union and Elizabeth Peabody House, have a registration of more than 300.

The difficulty in getting conference physicians is becoming more acute, on account of recent hospital graduates going into the service. The second clinic for older children was opened at the South Bay Union July 8.

BOSTON DISPENSARY EVENING CLINIC FOR WOMEN.—The Boston Dispensary has opened an evening pay clinic for the treatment of diseases of women, at the request of Major Alec N. Thompson of the U. S. Army Medical Corps. Dr. Arthur K. Paine will be in charge with Dr. Grace E. Rochford as his assistant.

The clinic is intended for women of moderate means, who are employed during the day and are in need of special medical treatment, for which they are unable to pay the usual specialist's fees. It will be open Monday and Friday evenings from 6.30 to 8 o'clock. A fee to cover the cost of treatment will be charged.

Obituary.

THOMAS FRANCIS LEEN, M.D.

THOMAS FRANCIS LEEN, M.D., died at the Carney Hospital, where he was physician-in-chief, September 16, 1918, of pneumonia, following influenza.

The son of Michael C. and Mary J. Leonard Leen, he was born in Boston, August 15, 1875. He was educated at the Boston Latin School, Harvard College (1898) and Harvard Medical School. After receiving his M.D. in 1901, Dr. Leen served as house physician at the Boston City Hospital and at the Boston Lying-in Hospital, beginning practice in Charlestown in 1904 and becoming visiting physician at the Carney Hospital, succeeding Dr. Henry A. Christian, in 1907. He held the position of assistant in theory and practice at Harvard Medical School, and since 1913 had been lecturer on this subject. At one time Dr. Leen

was a member of the Boston School Committee and he counted among his activities membership in Bunker Hill Council, Knights of Columbus, St. Vincent de Paul Society, the Catholic Alumni Sodality, Massachusetts Medical Society and American Medical Association.

In 1913 he married Miss Anna Jones Malley of Brookline, and she and one daughter survive him.

Miscellany.

AN UNPRECEDENTED OPPORTUNITY FOR WOMEN.

BY EMMA WHEAT GILLMORE, M.D.,

Chairman, Committee of Women Physicians, General Medical Board, Council of National Defense.

THE same year that gold was discovered in California, a lone pioneer received the first medical diploma which the United States had issued to a woman. Other colleges shortly followed the example of the one which had opened its doors to Elizabeth Blackwell, and today over fifty coeducational medical schools admit women upon the same terms as men.

There are more than 25,000 American physicians in military service at this writing, and the Council of National Defense is undertaking through the Volunteer Medical Service Corps,—an organization which has President Wilson's approval,—the task of classifying the qualifications of ninety thousand more. Of these, about six thousand are women, less than one-third of whom have registered with the General Medical Board.

Women of the profession, unless our qualifications are standardized and on file, can you not see that we are an unknown quality and quantity as far as the Government is concerned? In spite of the overwhelming difference in number—6000 women and over 100,000 men—and regardless of the fact that over twenty-two centuries have passed since Hippocrates wrote the immortal Oath and only sixty-nine years have elapsed since women entered the medical profession, the Volunteer Medical Service Corps has invited them to membership with the same impartial cordiality as it has the men.

During the last week in August application

blanks for the Volunteer Medical Service Corps were mailed in franked envelopes to all legally qualified men and women in the United States who were not already in Government Service. Presumably a number of women have been overlooked because many of them are not members of medical societies, but this will speedily be corrected if a notification of the omission is sent to the Volunteer Medical Service Corps, Council of National Defense, Washington, D. C.

Meanwhile, medical women who possess a vision will see in the Volunteer Medical Service Corps an incomparable method of organization which will register their qualifications and place them in an identical coded class system with men physicians. This Corps is in reality an ideal procedure for mobilizing the military forces of our country for selective medical war service. Incidentally it will place loyal and patriotic medical women by the side of those men who are willing to give themselves. Even though all of them are not elected to membership, their names will be on file with the Government as willing to serve as far as their strength and capability will permit, and no one can point a finger at them and say "slacker."

Will a page be turned over in the history of American Medical Women upon which will be written the qualifications of 6000 of them; matching that group of English physicians known as the Scottish Women's Hospitals, which was so perfectly organized that they were able to hand over to their Government a constructively organized body of professional women for military service? Or shall we continue, as we have done in sporadic groups for the past 69 years, to demand recognition of men and at the same time neglect unanimously to affiliate with them in recognized medical societies, and to withhold our influence both with pen and vote when medico-social and medico-political and medico-scientific issues are at stake which shake the very foundation upon which medicine rests?

The body politic of the civilized world holds a prominent place for the profession of medicine in the near future. Are we to have a hand in shaping it? The Volunteer Medical Service Corps is big with promise for women of the medical profession if we take advantage of it to put ourselves on record. The response which the Council of National Defense receives from women who apply for membership will tell the tale as to whether they have or have not grasped

and taken advantage of the unprecedented opportunity which this world's war for Democracy has opened up for them through the medium of the Volunteer Medical Service Corps.

Correspondence.

CONSERVATION OF PLATINUM.

Washington, D. C., September 17, 1918.

From: Lieut.-Colonel F. F. Simpson, M.C., N.A.,
Chief of Section of Medical Industry.
To: The Doctors and Dentists of the Country.
Subject: Utilization of Platinum in Unused Instruments.

1. In view of the limited supply of platinum in the country and of the urgent demand for war purposes, it is requested that every doctor and dentist in the country go carefully over his instruments and pick out *every scrap of platinum* that is not absolutely essential to his work. These scraps, however small and in whatever condition, should reach Governmental sources without delay, through one of two channels:

- a. They can be given to proper accredited representatives of the Red Cross who will shortly make a canvas for that purpose.
- b. They may be sold to the Government through any bank under the supervision of the Federal Reserve Board. Such banks will receive and pay current prices for platinum.

By giving this immediate attention you will definitely aid the war program.

2. It is recognized that certain dental and surgical instruments requiring platinum are necessary, and from time to time platinum is released for that purpose. It is hoped, however, that every physician and every dentist will use substitutes for platinum for such purposes wherever possible.

3. *You are warned* against giving your scrap platinum to anyone who calls at your office without full assurance that that individual is authorized to represent the Red Cross in the matter.

Lieut.-Col. F. F. Simpson, M.C., N.A.,
Chief of Section of Medical Industry.

PLATINUM CAUTERY TIPS.

Mr. Editor:—

Boston, Sept. 24, 1918.

There have recently been many attempts on the part of a tall, good-looking fellow to secure cautery tips (for their platinum content) from doctors. This fellow represents himself as a Government agent offering \$5.00 apiece for tips. If you won't sell, he either later telephones, asking to borrow your cautery from your nurse, representing himself over the 'phone as from Dr. So-and-So's office—or he comes back when you are out and *steals* your tips—as he did with me a short time ago. He has been reported to the police, but wouldn't it be a good plan to advertise him pretty thoroughly in the JOURNAL?

Yours very truly,

E. H. R.

RECENT DEATHS.

DR. LUCY W. TUCK, a member of the household at the Home for Aged Women, Roxbury, died there on September 19, at the age of ninety years. Weakness due to advanced age was the cause of death. Formerly she was a resident of South Weymouth.

Dr. Tuck was one of the earliest pioneers among women to take up practice, and she did not receive the regular medical and technical training which women have been given in recent years. She was interested in occult and metaphysical matters and wrote a book upon these subjects many years ago.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

COMBINED MEETING OF THE SECTIONS OF MEDICINE AND SURGERY, JUNE 19, 1918.

THE TREATMENT OF ORGANIC HEART DISEASE IN PREGNANCY AND LABOR.

BY FRANKLIN S. NEWELL, M.D., BOSTON.

The amount of space devoted by the various text-books to the discussion of abnormal conditions of the heart, as complications of pregnancy and labor, would suggest that these complications are both relatively infrequent and of minor importance, were it not for the accompanying statistical tables, which indicate that attempts at childbearing by women suffering from organic heart lesions are attended with a relatively high immediate mortality for both mother and child, and a much higher maternal morbidity.

Judging from my own experience only, cardiac lesions of sufficient gravity to give rise to more or less serious symptoms either during pregnancy or at labor are relatively frequent, and their successful treatment calls for the

most careful judgment, not only to avoid serious dangers during the present pregnancy and labor, but to safeguard the future well-being of the patient, and the problems which may arise are by no means simple ones.

There seems to be at the present time no agreement among internists as to the frequency with which heart lesions complicate pregnancy or as to their importance as a complication. Statistics show wide variations. One authority estimates that valvular lesions of the heart occur in 2% of all pregnant women, while another writer reports a 10% incidence. A similar variation occurs in the importance attached to the cardiac lesions as complications of pregnancy, one authority claiming that the discovery of a mitral stenosis during pregnancy is sufficient ground for the immediate termination of the pregnancy, even though the lesion may not as yet have given rise to symptoms, whereas another states that he does not fear heart disease as a complication of pregnancy and labor. When such marked differences occur among specialists in regard to the frequency and importance of any condition the practitioner may well be puzzled in regard to the prognosis and treatment of such cases.

Until the internists can agree as to what constitutes an organic heart lesion there will

always be a difference of opinion as to the frequency and seriousness of heart conditions as complications of pregnancy. If we are to believe that every heart murmur which appears during pregnancy in the complete absence of symptoms is an indication of organic disease, it is fair to assume that 10% of all pregnant women suffer from heart lesions, about four-fifths of which are of little or no clinical importance. On the other hand, if we consider only the murmurs which are also present in the non-pregnant state as evidence of organic disease and exclude the transient murmurs, considering them simply as evidence of temporary cardiac insufficiency under increased strain, the frequency is approximately 2%, but the importance is much increased, since in each case serious symptoms may arise, and there is little doubt but that the majority of true cardiac patients are affected more or less harmfully by the strain of pregnancy.

It would seem to be a fair estimate that about 2% of all pregnant women show cardiac lesions which give signs antedating pregnancy and persisting after delivery, and it is with this 2% that we are particularly concerned. In addition, from 6% to 8% of pregnant women develop a slight murmur during pregnancy, which disappears shortly after delivery, and which is so slight as to be negligible from a practical standpoint, and, therefore, can hardly be classed as an organic lesion.

The object of this paper is to offer a rational method of treatment, both during pregnancy and at the time of labor, for patients in whom a definite cardiac lesion is present, in the hope of setting a standard for the treatment of such cases, inasmuch as no such standard exists today in general practice, and the lives of many women are lost and the health of many others unnecessarily sacrificed by a lack of appreciation of the fact that every patient who has an organic heart lesion must receive careful observation and treatment during pregnancy, if serious consequences are to be avoided, at least in a considerable proportion of the cases.

It has long been taught that the extra work thrown on the heart during pregnancy results in considerable hypertrophy, and although recent observations have thrown some doubt on the degree of cardiac hypertrophy which takes place, it is presumable that the extra work which the heart is called on to perform during

pregnancy must be met by some hypertrophy. There is no doubt but that the heart is called on to do extra work during pregnancy, and as evidence of this we find many patients in whom symptoms referable to the heart appear for the first time during pregnancy although no organic lesion can be demonstrated, which is an indication that some increased strain is present. This limitation of cardiac response in patients who have no demonstrable organic lesion would suggest that pregnancy must affect the diseased heart even more seriously, and it is a matter of common experience that patients known to have valvular lesions which have remained perfectly compensated under the ordinary conditions of life frequently develop more or less serious decompensation during pregnancy. Furthermore, it is a fact that although a patient with an organic heart lesion may pass through one or more pregnancies safely and without showing signs of cardiac failure, the heart will eventually decompensate under the strain of repeated pregnancies, thus proving that although examination shows no increase in the cardiac lesion during a rest period, the strain of successive pregnancies in time exhausts the cardiac reserve and produces decompensation, irrespective of the lesion present in the given case.

The nature of the lesion is of great importance both in prognosis and treatment. Statistics would seem to show that mitral stenosis is distinctly more serious than the other valvular lesions, although this is denied by some observers. Next in importance come the lesions of the aortic valve, and last mitral regurgitation. Combined lesions are relatively more serious than a lesion of a single valve, especially if mitral stenosis is present. Probably more important than the actual lesion itself is the condition of the heart muscle, and this is a factor which I believe can never be accurately determined. We recognize that of ten patients with a given lesion eight will respond to the strain of pregnancy in a given way, but in my experience it is impossible to determine which of the patients are the two who will respond abnormally. Repeated consultation with internists leads me to believe that it is impossible to predict accurately which heart will decompensate under the strain of pregnancy and which will respond satisfactorily, although an accurate prognosis for the majority can be given. We have, therefore, no definite criterion

on which to base the prognosis in a given case, although when a patient has never suffered from an attack of decompensation at any time, it is fair to assume that with care pregnancy may be brought to a successful issue, but the previous history, age of the patient, and the nature of the lesion must also be taken into consideration. As a general rule the patients close to the end of the childbearing period with a given lesion are less liable to respond favorably to treatment than younger women, and patients who have never had attacks of decompensation are better risks than patients who have already had symptoms of cardiac failure.

There are several problems which arise in practice as to the proper course to be pursued in a patient who is known to have a valvular lesion of the heart; first, shall such a patient be advised that it is reasonably safe for her to have one or more children, or shall pregnancy be interdicted? Second, when a patient who has a valvular lesion becomes pregnant, with or without advice, under what circumstances shall pregnancy be allowed to go on; when shall it be terminated; and if abortion seems advisable what method shall be employed? Third, what method of delivery shall be carried out in a given case, if the patient is allowed to go to term? Before considering these questions I wish to state that it is my firm belief that every patient who suffers from organic heart disease will lessen her cardiac reserve in the attempt to bear children to such an extent that her life will be definitely shortened. Just how much damage will result depends on the care which she receives during pregnancy and the method of delivery which is selected, more than on any other factors, but I believe that in every case the added burden of pregnancy will reduce the cardiac reserve to some extent, and, therefore, definitely shorten the patient's life, and that in patients who are suffering from mitral stenosis the danger of immediately serious complications is always present.

What advice shall we give a patient with an organic lesion in regard to marriage and pregnancy? The common practice in years past has been to advise a patient known to have an organic lesion that marriage was inadvisable, and that if she did marry pregnancy was to be avoided under all circumstances. If we

are to take the position that prolongation of life to the last possible moment is the only standpoint from which we can advise a patient, this dictum expresses accurately the best advice, but it is impossible to formulate such a rule without doing serious injustice to the majority of patients who have valvular lesions. There can be no question but that the majority of these patients can marry and bear children without immediately serious consequences, if they receive proper care during pregnancy and if labor is properly conducted, although some damage to the heart will result. It is, in my opinion, unfair to condemn this class of cardiac patients to a life of single blessedness or, if they elect marriage against advice, to forbid their having one or more children, according to the cardiac condition, as long as the risks involved and the price which must be paid are carefully explained to both husband and wife and are accepted by them. The great majority of the patients who have come under my observation in private practice declare that the pleasure of having children more than compensates for any shortening of life which it involved, and I believe that in the great majority of these cases the preference of the patient should receive careful consideration, but every patient must be told that in spite of all precautions the strain of pregnancy on the damaged heart may prove to be such as to necessitate a termination of the pregnancy with loss of the child at any time, and that if such symptoms arise calling for radical treatment, her future condition will never be as good as if she had not attempted childbearing, and that she may be a cardiac invalid as a result of the attempt. Any patient who has had attacks of decompensation, whether during previous pregnancies or under the ordinary conditions of life, should be told that pregnancy carries with it such dangers that under no circumstances shall the risk be run. In a patient of this sort, even with the best care, pregnancy is almost sure to bring on serious decompensation which may result fatally, even though the pregnancy be interrupted at the beginning of serious symptoms. In other words, the added burden which a single pregnancy throws on the heart will have only a remote effect in the majority of patients who have never suffered from decompensation, but will have a very serious immediate effect in the majority of pa-

tients in whom the cardiac reserve is known to be limited, and in the latter class childbearing should be absolutely forbidden.

The Treatment of Patients With Cardiac Lesions: When, as usually happens, a patient who is the subject of a cardiac lesion first consults her doctor as to the advisability of pregnancy after the pregnancy is an established fact, the problem as to her treatment is a complicated one. We must decide first whether the pregnancy should be allowed to go on or should be immediately terminated before the strain on the heart becomes evident, and this must be decided by a consideration of the previous history taken in conjunction with the physical findings. If it is decided to allow the pregnancy to go on, careful supervision must be insisted on, and if the patient goes to term, or nearly to term, without showing the effects of strain or with but slight reaction, the method of delivery must be carefully selected to suit the conditions present in the individual case.

It is impossible to separate these cardiac cases into general groups that can be treated along given lines. Each patient must be treated as an individual and her reaction to pregnancy carefully studied. In the case of a patient whose heart has always been well compensated and who consults her physician in apparently good health, except for the lesion, a routine treatment can be carried out which will safeguard the patient as far as is possible. The patient should be under careful observation from an early date, and in the latter half of pregnancy should be seen at least every week by her physician. Active exercise must be forbidden during pregnancy in order that no additional work should be thrown on the heart. Such patients should be warned against going over the stairs more than is absolutely necessary; daily rest periods are essential; and I believe that even in a patient who has had no threatening symptoms a routine policy of one day a week in bed in order to rest the heart is a wise one. The diet should be carefully regulated, easily digestible food being prescribed in small amounts at frequent intervals. Particular attention should be paid to the action of the bowels. The blood pressure should be watched carefully and a rising pressure should cause deep concern and call for appropriate treatment. The urine should be examined at weekly intervals. The appearance

of even slight symptoms of decompensation, dyspnea, rapid pulse, etc., should be met promptly by rest in bed and the use of digitalis. Sunlight and fresh air should be obtained without active exercise.

Many patients will object to a routine of this sort, feeling that it is unnecessary because they have never suffered from symptoms of decompensation, but our problem is one of prevention rather than cure, and these precautions are wise, although they may prove to be unnecessary in a given case. If a patient has suffered from decompensation in the past, these precautions should be increased. The nature of the heart lesion should be taken into consideration, and patients with mitral stenosis should be watched more carefully, if possible, than patients with other lesions. If signs of decompensation develop in the early part of pregnancy the patient should be put to bed and the attempt made to restore compensation. If this succeeds the pregnancy should be ended as soon as the heart has become compensated, unless the child is of such value that serious risks for the mother, both for life and health, seem proper, and the dangers have been carefully explained to both parents. The termination of pregnancy is to be advised, because it is almost inevitable that the continuance of pregnancy in a patient who has decompensated early in pregnancy under careful observation will result in a more serious decompensation before the end of pregnancy is reached, which may have serious or even fatal results.

The method to be chosen for ending the pregnancy in such patients should be carefully considered. If compensation has been completely restored I prefer to terminate the pregnancy by means of an abdominal hysterotomy and to sterilize the patient at the same time, on the grounds that such a patient should never be exposed again to the risk of pregnancy. In such a case ether is ordinarily safe as an anesthetic, though operation under paravertebral or local anesthesia may be preferred. If the attempt at restoration of compensation fails, the only hope for the patient is immediate abortion, and the method chosen may determine the question of life or death. The most conservative treatment in these cases is, I believe, a vaginal hysterotomy under spinal or paravertebral anesthesia, a general anesthetic being badly borne in such patients, to be

followed at a later date if the patient's condition warrants, by sterilization, since under no circumstances should a patient who has once suffered from a serious break in compensation early in pregnancy be allowed to risk a future pregnancy.

In the latter part of pregnancy after the child is viable the same general lines of treatment should be followed. If the failure of compensation occurs at about the seventh month the patient should be put to bed and the attempt made to restore compensation. If this is successful and no subsequent signs of decompensation develop, the patient should be carried along under careful observation to about two weeks before the estimated date of labor and then delivered, preferably, at least in the case of a primipara, by the abdominal route, though in a multipara with a soft, easily dilatable cervix, labor may be induced by the use of a bag or a manual dilatation may be performed. At this date the risk to the child will be slight and the importance of saving the heart from the strain of the last two weeks of pregnancy is considerable, although if abdominal palpation shows the child to be definitely undersize it may be wise to wait for a week or even longer, unless symptoms arise calling for early interference, for the reason that after the patient has undergone such risks for the sake of having a living child, the interests of the child should be considered, unless they are in direct conflict with the interests of the mother. Vaginal delivery in a patient of this sort labors under the disadvantage of being an incomplete operation, for such a patient should, in my opinion, be sterilized in order that under no circumstances should a future pregnancy occur, and in primiparae especially the abdominal route is the safer. If the heart is compensated ether will usually be well borne, but otherwise local or paravertebral anesthesia is advisable. If the attempt at restoring compensation is unsuccessful the uterus must be emptied promptly without regard to the interests of the child. I believe that in such a case the abdominal route under local or spinal anesthesia is the safer, delivery to be followed by sterilization in all cases. If the vaginal route is chosen and the patient makes a satisfactory recovery sterilization at a later date is advisable.

The Method of Delivery in Cardiac cases:

When a patient with a cardiac lesion has been safely brought through pregnancy either without showing signs of decompensation, or after failing compensation has been restored by treatment, the problem to be met is what method of delivery shall be adopted which will give the most uniformly good results. It is impossible to lay down a definite rule and say that it must be followed in all cases, because the conditions present in the individual case must determine the choice of treatment. A great deal will depend on the nature of the lesion, the condition of the soft parts, and the estimated condition of the heart muscle, and patients must be divided into general groups according to these factors.

We shall first consider the method of delivery in primiparae with more or less rigid soft parts. In patients with mitral stenosis or with a marked aortic lesion there is no question in my mind but that abdominal Cesarean section offers the safest means of delivery, as the strain of a prolonged first stage, even though followed by prompt forceps delivery at the beginning of the second stage, will undoubtedly throw more strain on the heart than an abdominal delivery, and this added burden will necessarily lessen the cardiac reserve and ultimately shorten the patient's life. In a patient who has had no symptoms of decompensation it can fairly be said that the operation is not immediately urgent, but I believe fully that this method of delivery will prove to be a health-saving operation in these patients. If the patient has had previous failure of compensation, even though fully restored, I believe that the operation is obligatory with due regard to the well-being of the patient.

In multiparae with relaxed soft parts the operation is far less necessary and such patients, if the heart is well compensated, may be allowed to go through the first stage of labor and be delivered with forceps as soon as the stage of dilatation is completed. But even in these cases if there has been a serious break in compensation in the past, I believe that the abdominal route is preferable, especially since in such patients the question of sterilization should be seriously considered, and the abdominal route permits of delivery and sterilization at a single operation.

If compensation begins to fail in a patient in the last month of pregnancy,

whether she be a primipara or a multipara, an attempt at restoration of compensation should be made, to be followed, whether successful or not, by Cesarean section and sterilization. In these cases the use of a general anesthetic is doubtful and is absolutely dangerous in patients whose hearts are decompensated when operation is undertaken, and either local or paravertebral anesthesia should be employed.

In patients who have had mild aortic lesions or mitral regurgitation, who have not had previous breaks in compensation, labor may be permitted, but in all cardiac cases the second stage of labor should be eliminated by a prompt forceps delivery as soon as the cervix is dilated. If there have been previous breaks in compensation the abdominal route offers the safest means of delivery for these patients also and sterilization is advisable.

I do not wish to be understood, when urging abdominal delivery for serious cardiac lesions, to mean that the great majority will not pass through one or more labors successfully, irrespective of the method of delivery and of the nature of the lesion, provided the heart muscle is sound at the time of labor; but I do believe that the abdominal delivery will throw less strain on the diseased heart, and, therefore, result in the prolongation of the patient's life by limitation of damage; and I believe that in these cases we should consider not only the immediate result but the remote result as well.

There remains a considerable class of patients who develop cardiac symptoms during pregnancy in whom no definite lesion can be demonstrated; patients in whom the power of cardiac response is evidently very limited, who suffer from shortness of breath, rapid pulse, etc., on the slightest exertion during pregnancy, and yet in whom there is no definite lesion to be made out. It is presumable that many of these patients have a flabby, if not a diseased heart muscle, and that they require similar treatment to the patients who have definite valvular lesions. If rest, absence of all relievable strain and the use of digitalis do not restore the heart to a comparatively normal condition, these patients should be treated exactly as if a definite heart lesion could be made out and the strain of labor should be avoided, the patients being delivered by abdominal section. In certain patients the unsatisfactory heart condition is probably due to

a low grade toxemia from which they may not suffer in future pregnancies, but in other cases the symptoms are due to inherent weakness of the heart muscle and successive pregnancies will serve only to increase the trouble; and pregnancy should be absolutely forbidden or the patient will eventually become a cardiac invalid.

HEART LESIONS IN ANAESTHESIA.

By F. L. RICHARDSON, M.D., BOSTON.

THE general public and, to a lesser degree, the medical profession have a fear of the grave results of anaesthesia on patients with heart lesions. While it is true that patients with heart lesions die while under the effect of an anaesthetic, it is much more often due to the operative procedure than to the anaesthetic, provided the anaesthetic has been wisely selected and properly administered. I am afraid that the anaesthetic and the heart have been made the goat in certain unfortunate cases, whereas the operation or the manner in which the anaesthetic has been administered are the real factors in the case. Please do not understand me as believing that cases with heart lesions offer no greater risks than healthy individuals, for this is obviously not true, but usually they are not as serious risks as they are believed to be. Snow, in one of the most classical books on anaesthesia, says: "If a patient is able to undergo an operation, he will not be an impossible subject for an anaesthetic." After the lapse of almost 70 years there is no reason to change this statement.

Valvular heart lesions that are perfectly compensated and with a reasonable margin of safety offer very little danger from the anaesthesia. When, however, compensation is broken or the margin of safety is very narrow the danger of the anaesthesia increases markedly. In general if the heart lesion does not interfere with the ordinary affairs of life it will not interfere with the taking of an anaesthetic.

Lesions of the aortic valve are more serious than lesions of the mitral valve, and stenosis is more serious than simple regurgitation. Endocarditis and degeneration of the myocardium offer much more serious risks than chronic valvular disease, and I have a great fear of angina pectoris.

In my care of patients with serious disease of the heart of whatever nature it may be,

there is one fundamental principle about which all our treatment should center—maintain the bloodpressure at a point as near the level which is normal for that individual as possible. One should keep this in mind in the preoperative treatment, the operative procedure, the selection and administration of the anaesthetic, and in the post-operative care.

Wherever possible, patients with cardiac lesions should be put in bed, if they are not already in bed, and watched for a number of days without any change in their medication or food. The patient should be in about the position that he will have to occupy after the operation. This gives one an idea of how the patient should behave under conditions that would be ideal during convalescence—in other words, it gives us a “base line.” Blood-pressure should be taken at least once a day and I wish particularly to emphasize the importance of the diastolic pressure. In this period one has an opportunity of observing the effect of the post-operative position on the condition of the lungs.

The character of the diet before operation should be changed as little as possible from the normal. If the operation is to be at all protracted it is advisable to reduce the fats and increase the carbohydrates. I feel that the giving of 10 to 20 grains of sodium bicarbonate two hours before the operation is of some advantage. Cathartics should never be given unless the patient is in the habit of taking them.

When the time comes for the operation the patient should be carried to the anaesthetizing room and never be allowed to walk or to exert himself in the least. Quiet, but not absolute stillness, should be observed as soon as the anaesthetic is started. Many of these heart cases are high-strung and nervous, and fright is certainly a factor that should be reduced to a minimum, even though it is not possible to eliminate it.

Morphine and atropin should usually be given as preliminary medication and it is necessary that they be given sufficiently early to allow of their maximum action before the anaesthetic is started.

The patient should be placed on the operating table in a comfortable position. If the patient has been in the habit of sleeping with 3 or 4 pillows there is a reason for it. The patient has discovered the position in which he sleeps most comfortably and no preconceived

ideas of ours should interfere with his comfort. There is a more potent reason for this than the simple giving way to the patient's whim. If one wishes to have a smooth induction it is necessary to have the patient physically as well as mentally comfortable. If this usual sleeping position of the patient is not compatible with the operative procedure the position should be changed very gradually after the patient is fully anaesthetized, for any sudden change may cause a serious interference with breathing or heart action. It is particularly necessary to change the position gradually when Trendelenburg is required, and the surgeon should be willing to dispense with this position in case of serious interference with the cardiac or pulmonary function, even if very inconvenient for him.

With regard to the selection of the anaesthetic. If the operation can be performed *without pain* under local anaesthesia and the patient is not too apprehensive, this offers by far the least risk. It must be remembered that many operations that can be performed under local anaesthesia without pain are not without certain sensations, namely, the feeling of pressure and traction, which may be interpreted as pain by a nervous and apprehensive patient. The fear in these instances may be a greater element of danger than the taking of a general anaesthetic would be. Fear and pain will drive up the blood-pressure just as surely as ether or nitrous oxide, and the exhaustion following a long operation under local anaesthesia is a factor that must be given proper consideration.

Spinal anaesthesia should never be given to patients in whom the compensation is broken or in whom the margin of safety is narrow. It is a good rule not to use this form of anaesthesia in any patient who will not stand a temporary fall in blood-pressure of 50%. Patients with arteriosclerosis stand spinal anaesthesia quite well and they usually have the sluggish nervous system well suited to operations on a conscious patient. Here again one should consider the nature of the operation, for it is generally conceded that spinal anaesthesia is not safe for operations above the umbilicus.

Paravertebral anaesthesia would offer many advantages over local or spinal anaesthesia if it were not for the preliminary dose of scopolamine, a drug that is too much of a depres-

sant and too uncertain in its action to be used in cases with serious heart lesions.

Gas-oxygen, which has been heralded by its enthusiastic supporters as the safest of all general anaesthetics, is in reality far from safe in many cases, especially in cases of broken compensation or angina pectoris. I believe that this danger is probably due to the rise in blood-pressure that is always present to a certain degree and may become quite extreme if rebreathing is excessive or where cyanosis is present. Operations requiring little or no muscular relaxation and of short duration may in many cases be done with less disturbance to the patient under gas-oxygen than under any other form of anaesthesia, but where the operation is of long duration, and especially if muscular relaxation is required, this form of anaesthesia offers certain grave dangers. It must be remembered that great changes in the condition of the patient may occur with alarming rapidity and with little or no warning under this anaesthetic. This may be due to the rapidity of the action of nitrous oxide or to the nature of the surgical procedure. Whatever the cause of these changes, they are none the less alarming and dangerous.

One of the advantages claimed by the enthusiastic supporters of gas-oxygen is the rapidity with which the patients regain consciousness after the operation is completed. This is certainly dramatic; but is it a real advantage? If the operation is one that will be followed by much pain the patient regains full consciousness at a time when this pain is at its height, and this may in part counterbalance the advantages of this form of anaesthesia. The pain is much less if the technic of Crile is followed out, but there is the loss of some time in doing the local anaesthesia.

Another advantage claimed for gas-oxygen is the lack of nausea and vomiting,—matters of considerable importance,—especially in heart cases. In my hands I believe that almost as many patients vomit after prolonged gas-oxygen anaesthesia as after ether, but the duration and severity of the vomiting are much less. This is a real advantage.

Ether, like gas-oxygen, drives up the blood-pressure; but to a less extent, if properly given. Ether is a cardiac stimulant of more even action. Its use is usually followed by a period of deeper and longer depression than gas-oxygen, and it is this period of depression, fol-

lowing the administration of ether, that one should fear rather than the actual operative period. There are hardly any patients with heart lesions who will not go through the operative period with an ether anaesthesia, but some of these patients will not survive this period of depression following. To a certain extent the length and severity of this period of depression are governed by the depth of the anaesthesia and the length of the operation.

Chloroform, unlike gas-oxygen and ether, lowers the blood-pressure. Chloroform has certain advantages over ether. It is not unpleasant to take and it is somewhat quicker in its action. There are three periods of danger in its use. (1) Probably the highest percentage of fatalities in patients with heart lesions occurs during the induction, where with little or no warning the heart action stops. When this occurs it is not often possible to resuscitate. (2) The second period is during the maintenance, and the danger here is much less than in either the first or the third periods. (3) The third period is from 3 to 5 days after the operation and is due to the toxic action of the chloroform on certain organs, notably the liver, adrenals and heart muscle. Unfortunately, this action has not been recognized until quite recently; deaths occurring during this period being attributed to other factors than the anaesthetic. I do not feel that we are yet in a position to estimate the seriousness of this danger period, though I believe that it is of real importance.

Theoretically, it would seem as if we should be able to combine ether with chloroform in such a way that there would be little or no change in the blood-pressure. This has been tried for many years, notably by the English in the various A. C. E. mixtures. A mixture of ethyl chloride, chloroform and ether has been commercially exploited and largely used in America, but I believe it is now falling into disuse, as are the A.C.E. mixtures of the English. These various mixtures of chloroform and ether are much like the "standing orders" for the use of various drugs at some of the hospitals. They fit some cases admirably but are quite unsuited to other cases. The addition of a little chloroform to the mask is very useful where inducing anaesthesia with ether, but the mixture should be made on the mask as indicated and not accord-

ing to any preconceived formula. A very little chloroform dropped on the mask with the ether shortens the period of induction and reduces the amount of excitement. It also diminishes the rise in blood-pressure that is seen with a straight ether induction. Chloroform will also quiet the cough of a patient with bronchitis, but it is very rarely desirable to continue its use after the period of deep anaesthesia has been reached.

During the post-operative period it is more important in these heart cases than in the ordinary cases to prevent any unnecessary overload and to maintain the nourishment of the patient at a high level. Overload may come from various causes; among them kidneys and intestines play a large part and it is necessary to keep them functioning properly. Water should be given freely. When for any reason it cannot be given by mouth it must be given either by rectum or subpectorally, and in rare instances intravenously. It is advisable to begin food by mouth very early, and when I speak of food I do not mean beef tea and chicken broth; I mean food of real caloric value. When a patient cannot take food by mouth within 18 hours it is advisable to give nourishment by rectum. Glucose may be given by rectum in 5 to 10% strength and liquid peptanoid may be added to this if desired or wherever rectal feeding has to be given over a protracted period.

The urine should be carefully watched for acetone, and to those cases showing a considerable rise, sodium bicarbonate should be given in small and repeated doses. Of the so-called heart stimulants, most are absolutely useless. The judicious use of morphine must not be forgotten. More heart cases require rest after the operative period than require stimulation.

In conclusion, I wish to emphasize the importance of attention to the careful and detailed treatment of heart cases during the pre-operative and post-operative periods as well as during the operation and anaesthesia.

DISCUSSION.

SIR JAMES MACKENZIE, London: I have been long deeply interested in the two questions under discussion—of the heart in pregnancy, and in anaesthesia. As a matter of fact, one of the chief reasons for my interest in cardiac affairs

arose from the study of the heart in pregnancy. About a year or eighteen months after I entered practice a woman, with mitral stenosis, whom I attended, died in labor after thirty-six hours of great suffering, from heart failure. There arose in my mind the question whether I could not have saved her had I a better knowledge of the subject. For that reason I studied the literature to see where I had failed in my duty toward her. I found that the subject was fairly well summed up in a book written by Dr. Angus MacDonald of Edinburgh in 1876. Lately I have read some recent literature on the subject, and I find that obstetricians had evidently made no advance on MacDonald's book. The subject is of importance to every general practitioner, for the question is not seldom put to him whether a woman with a heart affection should run the risk of pregnancy, and so much depends upon his answer. Yet it is a subject which has received little consideration. The reason for this is that the physician never sees a childbirth, and the gynecologist rarely sees a case of heart failure.

I had ample opportunity in my practice for investigating the effects of pregnancy on the maternal heart. The method I followed was to examine women before pregnancy, and watch them during pregnancy and during labor, and through the puerperium, and after recovery and in some cases during repeated pregnancies, making notes of all circulatory changes. After a number of years I had a lot of facts collected about the heart in pregnancy. I found variations in the size and shape of the heart, modifications of the sound, and variations in the rhythm, and sometimes the veins of the neck became distended with marked pulsation. I wanted to know what all these signs signified. I turned to the text books and I could not find from them what bearing they had on the matter.

To get a clear conception of the nature of the danger I put the question, "What are you afraid of when a woman with a heart affection becomes pregnant?", and I found that it was a fear that the heart might fail. Then the question arose, "What is heart failure, and what are the phenomena that heart failure produces?" As a rule, the evidences of heart failure that are described in books are such signs as dropsy and enlargement of the liver. But what are the phenomena before such an ad-

vanced stage is reached? If ever the danger is foreseen, we must know by what signs heart failure in the early stages is to be detected. Text books as a rule are silent on this subject, and there did not then exist a clear conception of the matter.

When I perceived certain abnormal signs the questions arose: "Are those the signs of heart failure? Does this murmur indicate heart failure? Do these irregularities indicate heart failure?" When I turned to my books to find out the significance of these particular phenomena, still I could get no answer. The only thing left for me to do was to take a number of these cases and watch them, and see what happened. Thus I began to study heart failure, and especially in heart disease complicated with pregnancy, some thirty-five years ago, and I have not settled the matter yet. During that time I have collected data which give me a certain amount of knowledge by which I can in most cases speak with confidence as to whether a heart can bear the strain of pregnancy.

Mitral stenosis is recognized as a dangerous complication in pregnancy. This subject I particularly studied to see if I could recognize the reason for danger. I began with cases that suffered from rheumatic fever, and watched them for years to see what happened to them. I found that after an attack of rheumatic fever there is never any evidence of mitral stenosis to begin with. The symptom of stenosis never appeared until years after the damage was done by the rheumatic fever. The reason is that there first occurs an ulceration of the mitral valves which heals by cicatrization, and it is the amount of damage done to the valve that constitutes the danger. If the case is a severe one and cicatrization occurs rapidly, the murmur of mitral stenosis appears within a year or two of the causative attack of rheumatic fever, but at first there is no presystolic murmur, though there may be a systolic murmur. The first sign of the presence of mitral stenosis is a thrill before the apex beat. Later there appears a short presystolic murmur, not always present; then as the disease progresses and the narrowing becomes greater, the presystolic murmur becomes long and persistent. When the narrowing becomes still more advanced there appears, in addition to the presystolic murmur, a diastolic murmur. The presystolic murmur is due to the obstruction at the mitral orifice during auricular systole to

the passage of blood into the ventricle. The diastolic murmur is due to the fact that the blood accumulates in the auricle during ventricular systole, and the rush of blood into the ventricle at the end of ventricular systole causes the murmur.

Therefore in a patient with a short presystolic murmur there is only a small degree of stenosis, and with a long presystolic murmur there is a great degree of stenosis. Now when you get a woman coming to you who twenty years ago had rheumatic fever, and there is a short presystolic murmur, then you can say the prognosis is good, because a long period has supervened since the causative attack of rheumatic fever and the stenosis is slight in degree and the cicatrization is slow. But if you have a long presystolic murmur, and in addition a diastolic murmur, then the stenosis has become very great.

At the same time, by studying the symptoms induced by heart failure, I was able to recognize the phenomena which serve as a guide in determining the safety of pregnancy to a woman with a heart affection.

Heart failure is best recognized by the limitations of the patient's power to respond to effort. Many healthy women become very breathless during pregnancy, and it is necessary to be sure in any given case whether the breathlessness is due to a failing heart, or merely due to the embarrassment caused by the abdominal tumor. Patients with a systolic murmur and no other sign never show any serious signs of heart failure. It must be remembered that the great majority of systolic murmurs, especially in pregnant women, are physiological in origin, and are indicative neither of disease nor of impairment.

The dangerous forms of valvular disease are mitral stenosis and aortic regurgitation. In mitral stenosis, the character of the murmurs, the length of time since the causative attack of rheumatic fever, and the response of the heart to effort are the chief factors on which a safe prognosis can be based. If the murmur is short, and the attack of rheumatic fever over five years before, and a good response to effort, then the pregnancy may be permitted, provided the patient can be watched for early signs of heart failure, and severe bodily work avoided.

With a long presystolic murmur, and particularly with a diastolic murmur, the heart

response to effort will usually be found so limited that pregnancy would be dangerous. In the few cases of aortic regurgitation I have seen, though the patients came through the puerperium, the heart was so permanently weakened that they all drifted and died of heart failure. In auricular fibrillation the patients have not gone to full term, and all were permanently made worse by the pregnancy. Patent ductus arteriosus does not have any bad effect, and the few cases I have seen have borne the pregnancy without trouble.

In regard to chloroform anesthesia, I do not want to speak in any sense as an authority on anesthetics, except in so far that I was brought up in the school of Syme and Lister, and have practised their principles. I have given a good deal of attention to its effect upon the heart. In Edinburgh, we, as students, were given charge of half a dozen cases in the surgical ward, and each was responsible for the giving of chloroform. We were taught the principles in which the method was employed, namely, to watch the physiological effect. Up to 1877, there had never been a death from chloroform in Edinburgh Infirmary. In speaking to one London anesthetist, he said he had 20,000 cases without a single death. On the other hand, there are hospitals where one death occurs in 3000. You can draw your own conclusions.

How does chloroform act? The following theory suggests an explanation: The most recent developed part in the body is the part most particularly subject to certain poisons. The spinal column of a child shows no cervical enlargement. This comes later, after the child uses the fingers in making many movements. The cells that preside over these movements increase in number so that the cord bulges where they are deposited. The same principle applies to the development of the speech center. We have got the muscles there for other purposes and later we use them in speaking. A drunken man trying to write cannot make the fine movements of the fingers, yet he can lift the glass to his lips. Those muscles are not paralyzed, and yet he cannot make the fine movements—the latter developed cells are paralyzed. In chloroform anesthesia it is the mental processes—the latest developed functions—that are affected first; afterwards the power of speech goes, then the loss of sensation and the loss of motion. That is to say, we have got a degree of anesthesia affecting

the most recently developed parts, while the nerve centers that preside over respiration and other organic reflexes are not reached till a later stage. It is at this stage, between the time sensation is abolished and the time when the organic reflexes are affected, that it is safe to operate.

Thousands of healthy people have been carefully observed, and the result is uniform—a loss of sensation and of the superficial reflexes such as the conjunctival, the safe stage of anesthesia, the respiratory center remains unaffected, and the heart's action is undisturbed. If in careful chloroform anesthesia death occurs, then it may be assumed that there was some other factor present, probably disease. Moreover, seeing that chloroform can be administered with safety to individuals with advanced valvular disease of the heart and other affections, it is reasonable to assume it is some peculiar affection which predisposes to death from heart failure under chloroform. How is this peculiar form of disease to be discovered? Only by doctors skilled in the knowledge of the different affections of the heart, watching patients when under the anesthetic. It is manifestly absurd to expect the source of danger to be discovered in the physiological laboratory, when the animals experimented on have healthy hearts, and the experimenters have no knowledge of the diseases of the heart.

THE NORMAL HEART IN THE NAVY.

BY G. F. FREEMAN, MEDICAL INSPECTOR, U. S. NAVY, BOSTON.

Mr. Chairman and Fellows of the Massachusetts Medical Society:

I fully appreciate the honor of being present to represent the Medical Corps of the Navy, and will give a brief résumé of what investigation I have carried on in regard to that most perplexing question, "What constitutes a normal heart as far as the standards of the Navy are concerned?"

At one time I kept notes for statistical purposes of the examinations of several hundred cases in the Navy enlisted personnel, and wrote a short monograph, some copies of which are at hand. I have since that time been more especially interested in the subject and have confirmed these observations. I am not a heart

expert, but any one in the Navy, listening to so many normal hearts, in the repeated examinations we have to make on the same individual, must draw some conclusions as to what he thinks is normal, inasmuch as these men stand hard work and the strain of Navy life, and also much exposure, year after year, and certainly their hearts must set a standard at least as high as normal, otherwise they would show some effects on the heart as influenced by this life.

Looking into past history, I am sure that many have been rejected for military service on account of "heart murmur" who had perfectly normal hearts. I know that in my early career in the Navy I affirmed in writing as to certain cases having organic heart disease whom I would now pass as normal, this affirmation being due to a systolic murmur heard at the apex, which did not, unfortunately, disappear at any one time when the man was examined. I have since that time found these murmurs and have listened to the same man again under the same physical conditions and found the murmur gone. It is not uncommon to find on a man's health record these words, "slight systolic murmur at apex," and examine the man several times and find no murmur. Years ago in one of the medical journals I found a short note by Dr. Osler to the effect that many men were rejected for the Army and the Navy on account of these systolic murmurs, without any other symptoms. He ended this note with the words, "thus many good and normal men were lost to the Army and the Navy." Most of us have learned by experience the wisdom of Osler's words, although it is still hard to convince some that most of these murmurs do not mean anything. The irregularities may mean some defect, but these murmurs seldom do. The same position is taken by Sir James Mackenzie in the British instructions: "It should be understood that the healthy heart of the young adult can exhibit murmurs, and variations in rate and rhythm, which are perfectly physiological in origin and indicative of neither disease nor impairment." From personal experience, as quoted by many authors, these murmurs are not transmitted and do not have the other signs of organic disease.

Irregularities are to my mind a source of suspicion, and should be investigated as possibly caused by sinus arrhythmia, extrasystoles,

fibrillation, heart block, auricular flutter, paroxysmal tachycardia, etc. The irregularity may mean nothing however, as that caused by respiration, the so-called respiratory irregularity which is physiological. Auricular flutter would naturally lead to a suspicion of myocardial disease and thus be permanent, the old "*pulsus irregularis perpetuus*." These cases, besides what may be determined by palpation, would show other symptoms, and at least be sufficiently diagnosed to cause rejection or reexaminations by special boards.

It is also true that often these functional murmurs and the false murmurs disappear on the patient's assuming the prone position. The old rule of systolic murmurs being heard best in the prone position was found to be true during my investigations. In fact, in my statistics there were some cases where the murmur could be heard only in the prone position. It is, therefore, well to examine all cases while they are lying down, even at the expense of a few minutes' time, although extra minutes devoted to each case, when there are a great number to examine, introduces quite a time factor, but it is time well spent, even if the number examined per hour is somewhat less.

Some of the deductions from examinations are as follows, and apply to all classes, both recruits and reenlistments. The average weight at original enlistment was 133.5 for recruits and 151.6 for reenlistments.

CONCLUSIONS AND OBSERVATIONS.

The normal heart in the Navy corresponds, as far as physical examination is concerned, to the usual descriptions as to size and sounds, rhythm, etc.

1. The apex beat, which is the most important guide in determining the size of the heart, should always be defined. In a series of 200 cases it was found in the fifth space in 89%, in the sixth space in 8%, and in the fourth space in 3%. The apex beat can be felt in all but 4% of cases before exercise, and in all but 1/2% after exercise. In examining recruits and persons in the service, the heart's size can be defined much better than in the usual clinic, because the subjects are all muscular young men, not obese, and have a vigorous heart action.

2. The apex is, on the average, 9.165 cm. from the mid-sternal line, and the nipple is 10.28 cm. from the mid-sternal line. On ac-

count of class of case examined,—muscular men,—the nipple is a landmark of much greater importance than it is in a mixed city clinic. The apex averages 1 cm. inside the nipple line, but there is a normal variation to outside the nipple line.

3. In $67\frac{1}{2}\%$ of cases the apex is inside the nipple line. In $10\frac{1}{2}\%$ the apex is in the nipple line. In 12% the apex is outside the nipple line.

4. In recording the location of the heart's apex, on account of the different shape of chests, it is best to give the distance in centimeters from the mid-sternal line. These measurements are best obtained by marking on the chest and then measuring between the lines marked by the usual measuring tape laid on the chest, and *not* by trying to estimate the distance between the fingers holding the tape, between the points determined. In like manner a measuring rule can be used, but the first method has been more satisfactory, as the tape is always at hand in the examining room.

5. The right border of the heart is best determined by light percussion. In the cases taken the measurement was from the mid-sternal line at the lower border of the second right interspace, measuring from markings on the chest, the point mentioned being very easily determined. It averaged 2.6 cm., or practically one inch from the mid-sternal line. With a sternum of average width, the right border will be found about 0.7 cm. (or about $\frac{1}{3}$ in.) from the right border of the sternum, and as this distance is rather too small to estimate by the usual percussion on a finger, it is best to assume that the right border of the heart extends at this point to just outside the sternal margin. The location of the right side of the heart may vary slightly with different observers, as its estimation depends somewhat on individual equation, as does the general outline of the heart if determined by percussion. On the other hand, when we consider the muscular type of man we are dealing with, I cannot agree that the attempt to locate the right side by percussion is of no value, and that the only sure way is the x-ray. I *do* know that in these cases we can percuss the left border accurately because there we have a check on our percussion, viz., the location of the apex beat. Then if we can locate the left side accurately, why cannot we locate the right

side also by the same methods? The method used was to percuss with the eyes shut and have an assistant mark the point found.

6. The rate of the pulse on the physical examination of the Navy personnel is accelerated by the excitement which seems to affect the men on reënlistment as well as recruits. The pulse is also increased by exercise (ten sweeps from the erect position and sweeping down to or near the floor), about ten beats per minute in recruits, and seven beats in the reënlistments. A minute's rest is given after the exercise before the pulse is recorded. The average rate of pulse in recruits was 84 sitting, 90 standing, and 93 after examination. This high pulse rate is due to the excitement of being in the examining room. Men who had been in the service from four to twenty years also had a high pulse rate, the average being 87 standing, 87 sitting, and 94 after the exercise.

7. Most of the murmurs heard meant neither an abnormal heart nor heart disease. What could be called a murmur was found in 42% of the recruits who, after passing the recruiting office, were examined for final acceptance. In the reënlistments of recruits, 19% were found with heart murmurs.

In the verification for final acceptance, 4% were found to be not physically qualified on account of some heart condition, and this condition was verified by a board of three medical officers, and thus it was not the opinion of the single examiner. They were not allowed to continue in the service. The cases rejected in 100 recruits who had previously been accepted were as follows:

1. Mitral regurgitation; poor physique.
2. Mitral regurgitation, in a recruit for firemen. As the firemen have to have a very high physical standard, anything that is doubtful cannot be accepted.
3. Tachycardia, constant rate 124, poor physique, bronchitis.
4. Probable mitral stenosis, regurgitation.

In the reënlistments there was $\frac{1}{2}\%$ rejections on account of heart condition.

The most common murmur found was a systolic one at the second or third left interspace or the apex, and fairly common at the right of the sternum. The systolic murmur at the apex, also accompanied by some heart enlargement and an accentuated pulmonic second, is often found in chance examinations in

men in the naval service and cannot, therefore, necessarily mean heart disease, as these men never had and do not under observation have, any symptoms. It is well to record all these murmurs on the health record simply as murmurs, and not to apply to them the name of a heart lesion. The mitral systolic murmur cannot be diagnosed as mitral regurgitation unless there are real symptoms, still I must confess that I was brought up to believe that a mitral systolic murmur meant mitral regurgitation.

I have, perhaps, dwelt too long on this subject of heart murmur in the normal heart, but I find it still the very puzzling problem for examiners, who fear they may pass a man and later have him break down under the strain of the Service. Even were these sounds *bona fide* murmurs, there is no proof at this time that, unless the heart exhibits other symptoms, these men cannot stand the strain of war, especially when we consider the record of men with aortic regurgitation, for instance, who have undergone severe campaigns.

There is no fixed law in the Navy as to what heart condition is normal, and much is left to the individual examiner. It is generally accepted, however, that anything but a mild systolic murmur, either at the base or apex or along the sternal border, will disqualify for the naval service. Standing by itself, the systolic murmur at the apex, whatever its character, should not be a cause for rejection, according to the British Research Committee, of which Dr. Lewis is a member. This decision seems to be sound, and for the murmur to mean anything, there will be an accompanying history or symptoms. In our Naval Service, however, with recruits sometimes not truthful in regard to symptoms, we have to be careful, and if the murmur seems to be a part of an organic heart condition, we cannot accept them, at least without a waiver for physical disability, which is submitted to the Surgeon-General at Washington. Irregularities are also often present in normal hearts, and when not accompanied by an inefficiency, and having a heart of normal size, should not be a cause for rejection. Both of the latter types have been found in men who were absolutely normal as far as physical efficiency was concerned.

Many normal men suffer temporary abnormalities during the excitement of the physical

examination by the medical officer, and I have found that the excitement of the examination produces practically the same effect as rather strenuous exercise,—a forcible, rapid impulse and the systolic murmurs mentioned. This also explains the fact that one medical officer will find a murmur and the next medical officer, on a different occasion, will not, obviously because the murmur was not there at the second examination.

In estimating the value of the heart examination in these cases, experience is a great aid to the medical officer, just as it is in detecting the variations in the normal lung. By experience we have found that men with these irregularities and murmurs can perform their duties year after year without any symptoms or change in the heart condition. This heart may vary from what we were instructed in school should be the perfect heart, nevertheless, it is the heart found in hundreds of men who are as near the requisite physical standard as we can find, and thus we call that the normal condition. The standard of what we have heard in these normal men may lead us into mistakes sometimes, but this will occur, I think, very seldom, and as we make mistakes anyway, I do not think that the grand total of mistakes will be increased in per cent.

Up to the present time we have maintained a high physical standard in the Navy, and thus have not required special boards for the doubtful cases; the really doubtful cases are rejected. I have thus confined my paper to the simpler phases of heart examination, the conditions we have had to meet in the past, and not the possibilities of the future.

THE USE OF THE X-RAY IN THE EXAMINATION OF THE HEART AND AORTA.

BY GEORGE W. HOLMES, M.D., BOSTON.

WHETHER or not an object can be visualized by the x-rays depends upon its relative density to the objects immediately surrounding it. The heart and great vessels (comparatively dense organs), surrounded as they are by the air-filled lungs, offer an unusually satisfactory field for study by this means.

The fact that examination by x-ray has not come into more general use in this field is probably due to two factors. (1) the accuracy

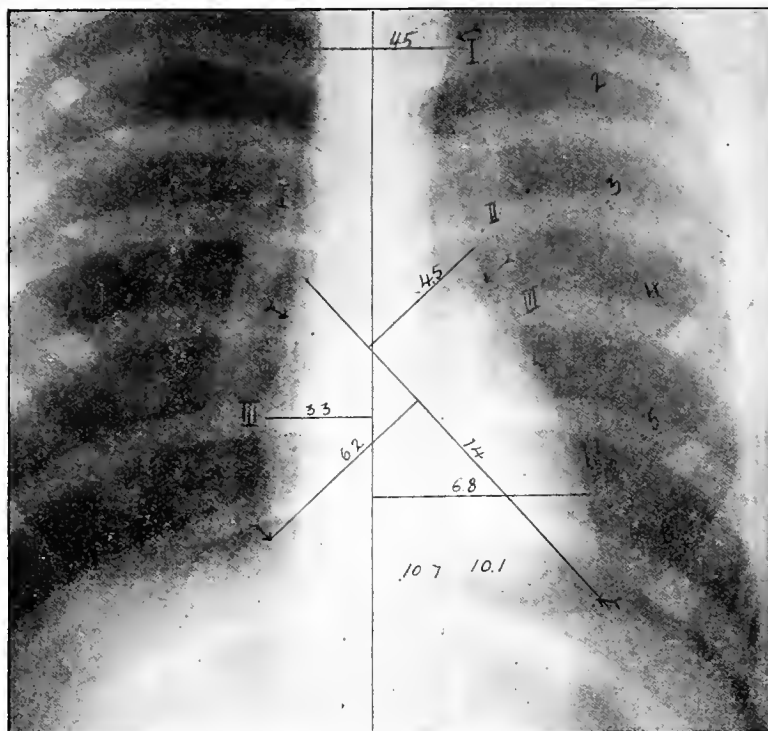


FIG. 1.—Normal heart. (Patient standing; tube film distance, six feet.) The points from which measurements are taken are shown; also the outline of the various chambers. *I* on right is the curve at the ascending aorta, *III* on the right is the curve of the right auricle, *I* on the left is the prominence of the aortic arch, *II* the prominence of the pulmonary artery, *III* curve of left auricle, *IV* curve of left ventricle.

with which most changes within the chest can be determined by the older and more widely known method; and (2) because the shadow of the heart and great vessels as seen on the ordinary x-ray plate is both distorted and magnified, and in drawing conclusion from them the clinician has frequently been led into error.

There are, however, certain lesions of the heart and great vessels, in which an accurate diagnosis by the older methods alone is most difficult and at times impossible. It is this class of cases in which the x-ray examination will be found of the greatest help. By using parallel or nearly parallel rays and by combining with this data that obtained by fluoroscopic observations, the errors due to distortion and magnification can be eliminated.

DESCRIPTION OF THE HEART SHADOW.

Before calling attention to the appearance of the heart and great vessels in disease, it is, perhaps, desirable to describe briefly their anatomy as seen on the x-ray plate or screen.

The shape of the heart varies in different

types of individuals. In the short, deep-chested person the heart is higher and its transverse shadow is wider, giving the appearance of enlargement to the left. In the ptoic, the apex drops downward and rotates backward, so that the heart shadow seems long and narrow. A similar appearance may be brought about by making the observation at full inspiration.

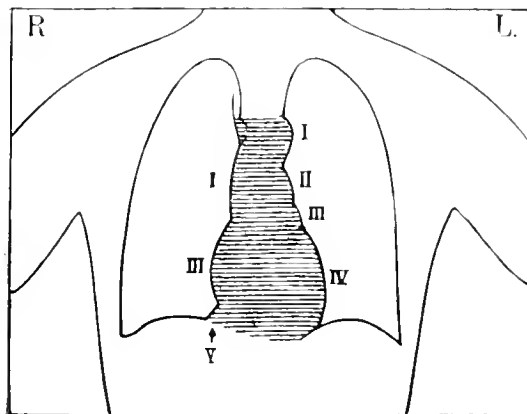


FIG. 2.—Diagram from "Groedel" showing position of chambers of the heart; also position of great vessels.

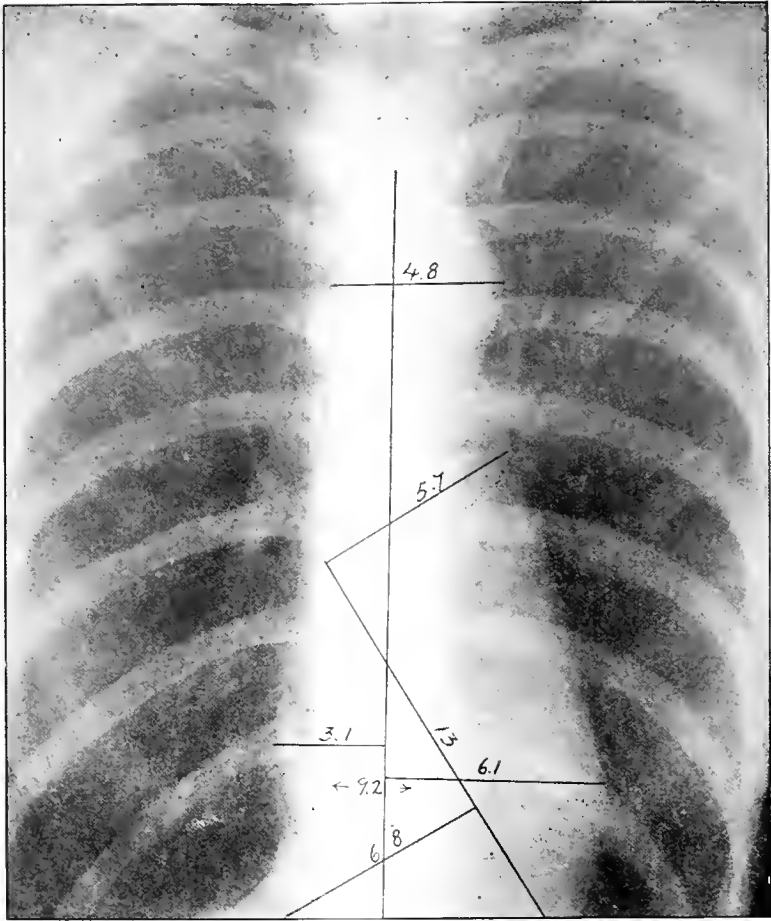


FIG. 3.—Ptosis of Heart and Diaphragm. (Tube film distance, six feet with patient standing.) Note the long, low, narrow heart shadow.

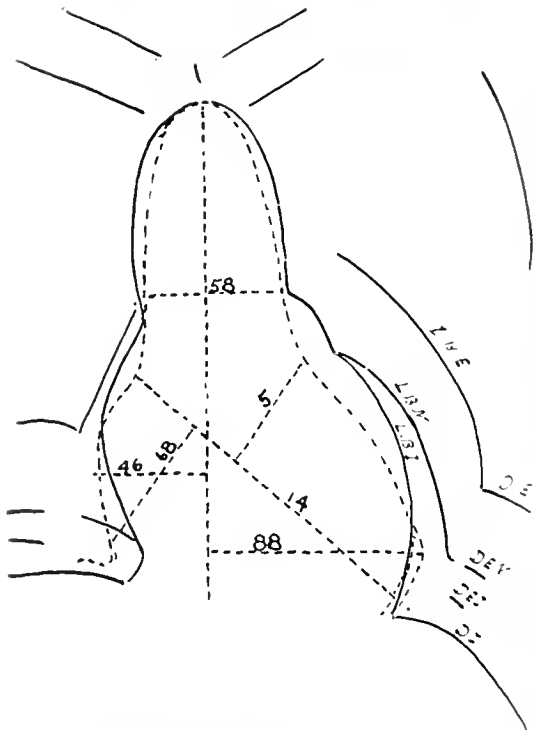


FIG. 4.—Tracing showing respiratory movements of the normal heart and diaphragm.

Respiratory movements of the heart also vary somewhat in different individuals, but are roughly in proportion to the respiratory excursion of the diaphragm. There is some movement with change of position of the patient, but very little change in shape. An exception to this statement is the change of shape of the heart of the ptotic, due to the drop of the diaphragm when the patient is upright.

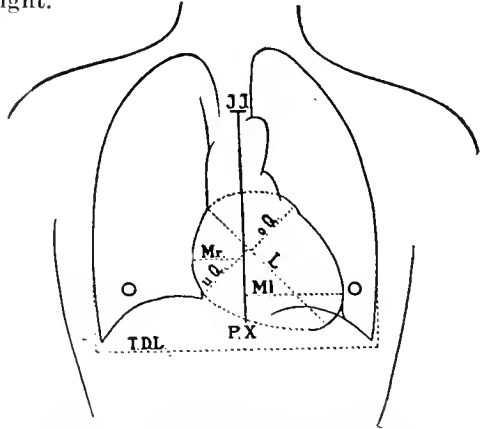


FIG. 5.—Diagram from "Groedel" showing location of points from which measurements are taken.

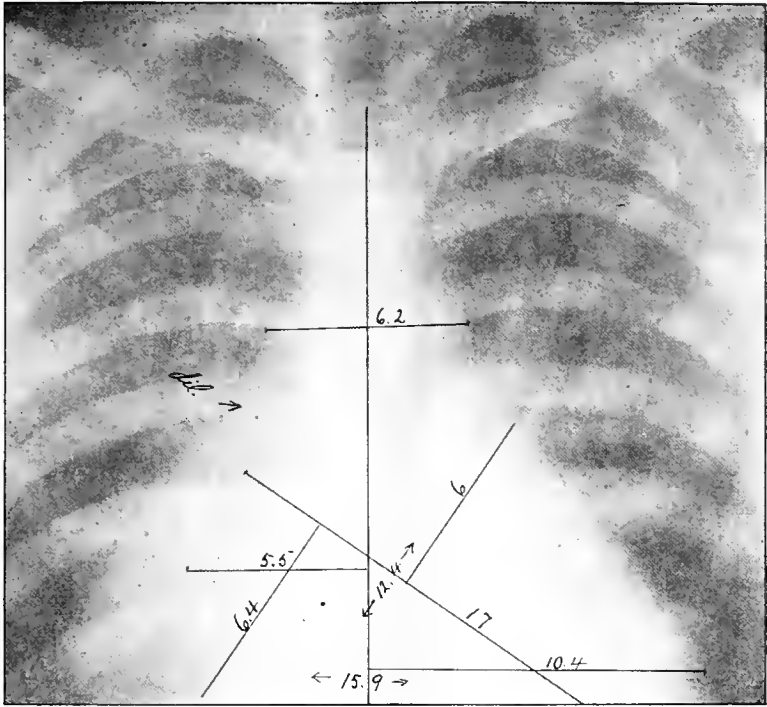


FIG. 6.—Specific Aortitis, proven at autopsy. Note prominence of aortic shadow to the right.

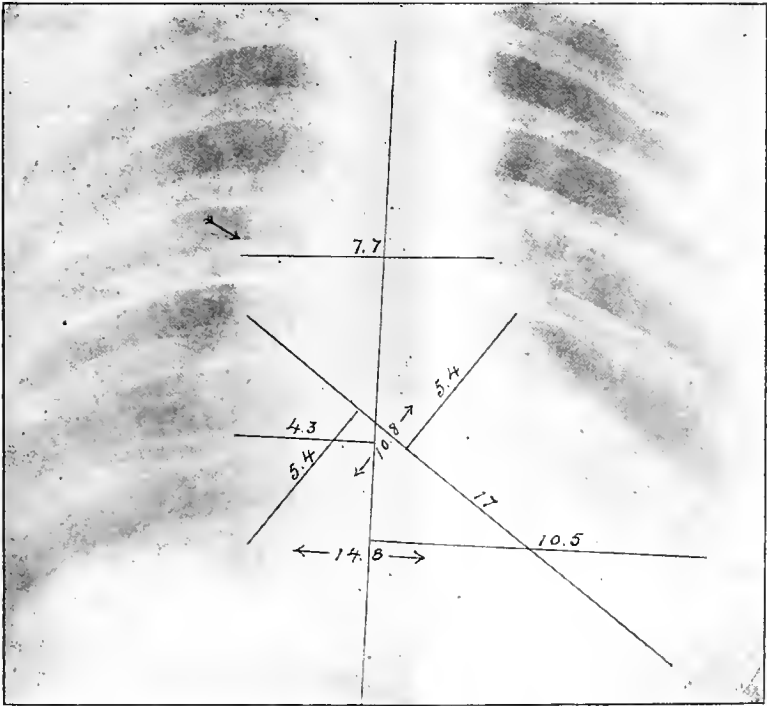


FIG. 6a.—Extreme Dilatation of Aorta Suggesting Aneurysm.

The outline of the heart and great vessels is formed by two curved lines on the right, the upper representing the ascending portion of the aorta and the lower the bulge of the right auricle. On the left, by four, the upper of

which is the peak of the arch and the descending aorta; the second (directly below it), the prominence of the pulmonary artery; the third, a short area, sometimes invisible, which is the curve of the left auricle; and a long,

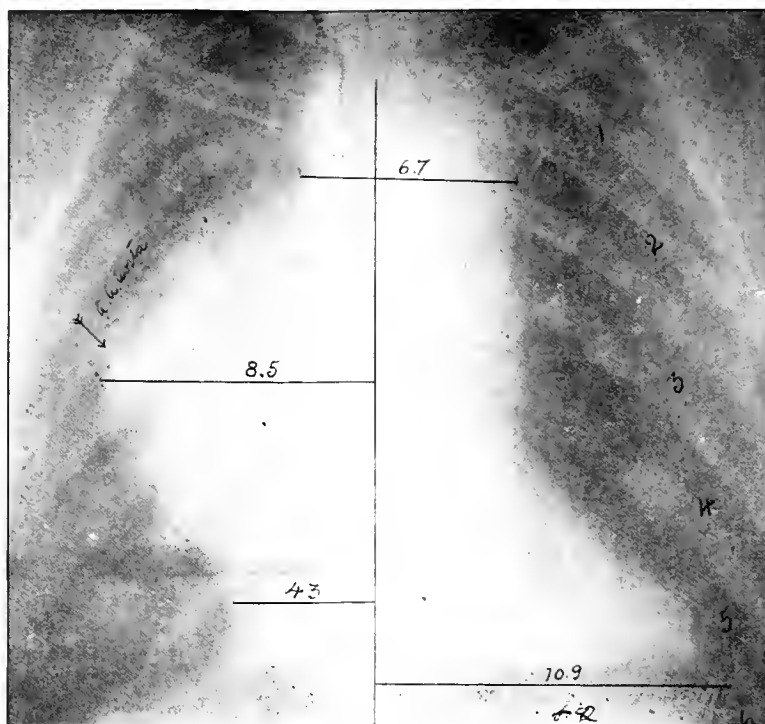


FIG. 7.—Aneurysm of Ascending Aorta.



FIG. 8.—Pericarditis with Effusion. (Patient standing, tube film distance six feet.) Note change of shape as compared with Fig. 8a.

wide curve which forms the greater part of the shadow of the left side, and which represents the outline of the left ventricle.

The right ventricle lies in front of the heart

shadow, and is not visible in the antero-posterior views.

The apex of the heart is often below the dome of the diaphragm, and for this reason



FIG. 8a.—Pericarditis with Effusion. (Same patient as Fig. 8, taken the same day. Patient in prone position: tube film distance six feet.)

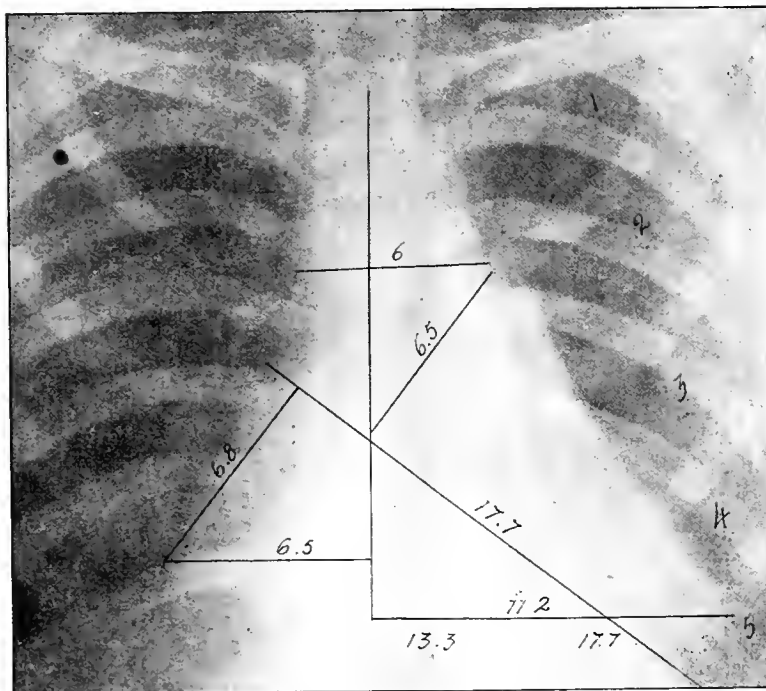


FIG. 9.—Adhesive Pericarditis.

may not be visible on the plates, but it can usually be located on the fluoroscopic screen by its movements.

With a knowledge of the position of the various chambers of the heart, the pulsation in each chamber can be studied and comparisons

can be made between the pulsations of the auricles and the left ventricle. Their relative size may help us in determining what, if any, valvular lesion is present.

As the shadow of the assembling and descending portions of the aorta overlap one an-

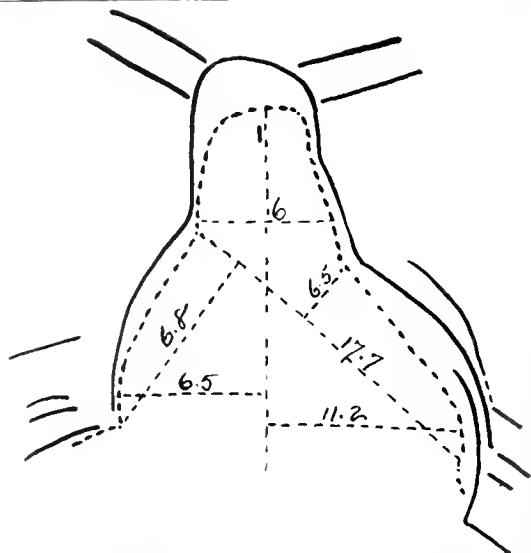


FIG. 9a.—Tracing showing respiratory movements of heart and diaphragm in Adhesive Pericarditis.

MEASUREMENTS OF THE HEART.

The most desirable points from which to take measurements in determining the size of the heart have been studied by several investigators. Those most generally used are the ones selected by Groedel. They consist of three points on the right and three on the left side of the heart shadow. Those on the right are: (1) at the junction of the heart shadow with that of the great vessels, and (2) at the farthest point to the right, and (3) at the junction of the heart shadow with that of the diaphragm. The upper point on the left is at the junction of the left auricle with the left ventricle. The second is the farthest point to the left, and the third is at the apex.

The median line is usually obtained by drawing a line down the center of the shadow

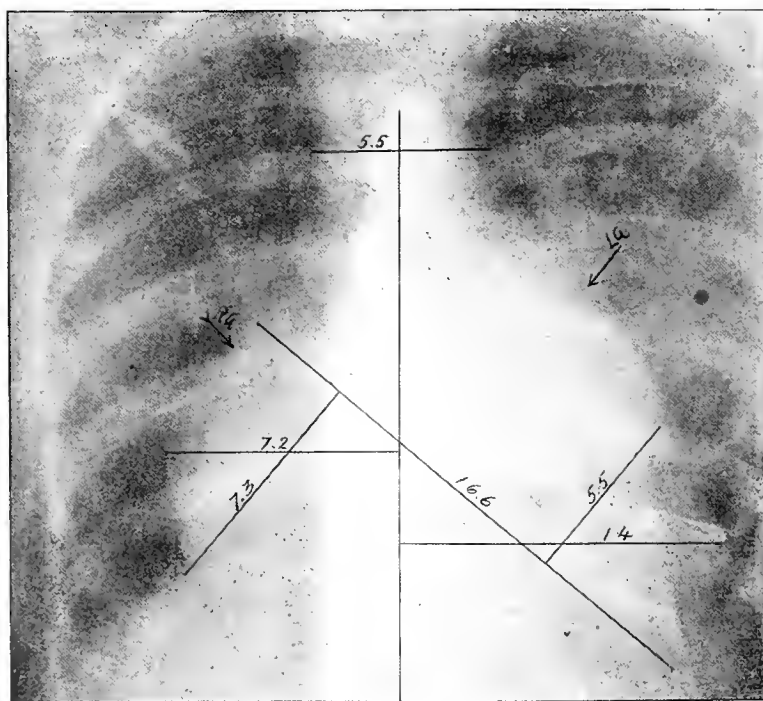


FIG. 10—Mitral Disease. (Patient standing; tube film distance six feet. Note marked prominence in region of right and left auricle.

other (as seen in the antero-posterior view) the transverse diameter of the mediastinal shadow above the heart does not represent the true diameter of the aorta. It may be increased by a wide curve or diminished by a narrow one, as well as by dilatation of the great vessels. A high position of the heart also tends to widen the curve of the aortic arch and increases the transverse shadow.

of the spine. From this, the distance to the right and to the left is taken. The point at the apex is connected with the highest point on the right by a second line. This line represents the length of the heart (the distance from the base to the apex). The sum of two lines drawn at right angles to it, connecting it with the lowest point on the right and with the highest point on the left, is the diameter of the base.

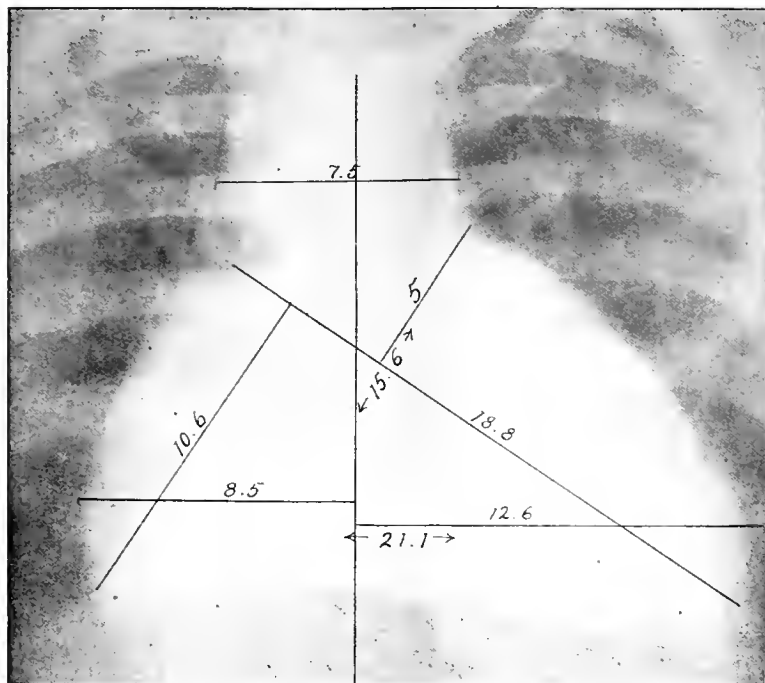


FIG. 11.—Dilated Heart. (Patient upright; tube film distance six feet.)

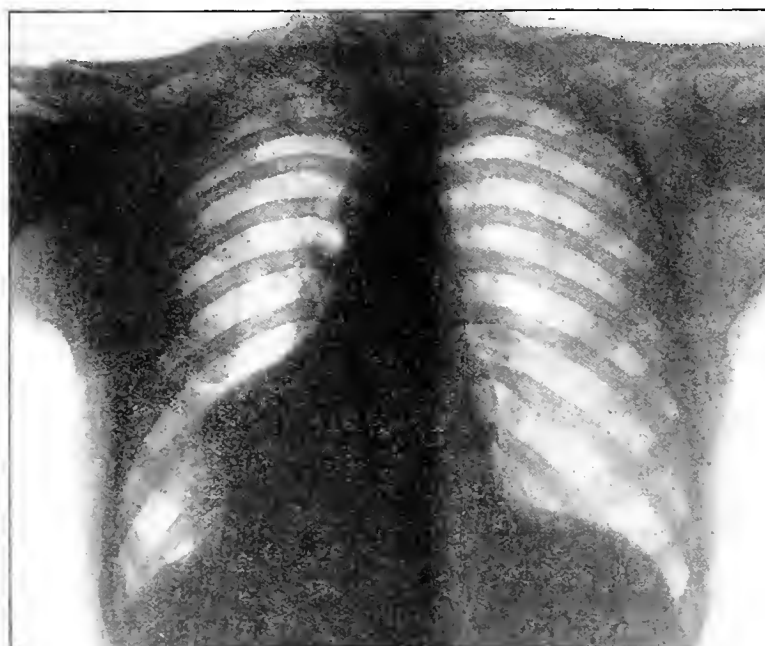


FIG. 12.—Aortic Disease. (Tube film distance six feet.) Note prominence of left auricle. (Compare with Figure 12a.)

If carefully done, these measurements are quite accurate. The ones most subject to error are the relative distances to the right and to the left, as it is difficult to locate the mid-line. The sum of the distance to the right and left (that is, the transverse diameter of the shadow) is very accurate, that is, one may place the heart too far to the right or to the left because of failure to locate the mid-line or because of a slight amount of rotation of the patient at the time the plate was taken. The diameter across the base may vary be-

cause of the difficulty in locating the junction of the left auricle with the left ventricle. It also varies somewhat with the position of the diaphragm. The length of the heart is probably the most unsatisfactory of all the measurements because of the difficulty in locating the apex. The following table by Claytor and Merrill gives the measurements of normal hearts of the male and female:

CLAYTOR, MERRILL: ORTHODIAGRAMPHY.

TABLE I. VERTICAL HEART ORTHODIAGRAMS, MALE (37 CASES).

WEIGHT, LBS.	CASES	MR.	ML.	T. D.	L. D.	MIN.
120-129	3	3.2	7.0	10.7	11.8	Min.
		3.7	7.2	10.9	12.6	Av.
		4.3	7.5	11.3	13.5	Max.
		3.5	7.5	11.0	12.0	Min.
130-139	5	3.8	8.0	11.8	13.2	Av.
		4.2	8.5	12.5	14.0	Max.
		3.4	7.0	11.0	12.0	Min.
		4.0	7.7	11.9	13.4	Av.
140-149	9	4.6	8.4	13.1	14.5	Max.
		3.2	7.8	11.5	12.5	Min.
		3.9	8.4	12.3	13.5	Av.
		4.5	9.0	13.0	15.0	Max.
150-159	8	3.7	8.0	12.0	14.0	Min.
		4.2	8.7	12.9	14.7	Av.
		4.5	9.7	13.4	15.3	Max.

TABLE II. VERTICAL HEART ORTHODIAGRAMS, FEMALE (54 CASES).

WEIGHT, LBS.	CASES	MR.	ML.	T. D.	L. D.	MIN.
100-109	2	3.2	6.7	9.9	12.0	Min.
		3.3	6.8	10.2	12.1	Av.
		3.5	7.0	10.5	12.3	Max.
		3.0	7.0	10.0	11.5	Min.
110-119	3	3.1	7.6	10.7	11.9	Av.
		3.2	8.0	11.1	12.4	Max.
		2.3	6.4	10.2	10.5	Min.
		3.5	7.5	11.0	12.2	Av.
120-129	14	4.2	8.6	12.2	13.8	Max.
		3.0	6.4	9.6	12.2	Min.
		3.4	7.8	11.2	12.4	Av.
		4.0	8.8	12.6	13.3	Max.
130-139	19	2.6	7.0	12.6	12.2	Min.
		3.5	7.6	11.1	12.7	Av.
		4.1	8.3	11.8	13.2	Max.
		3.1	7.6	10.9	12.3	Min.
140-149	5	3.6	8.0	11.6	12.9	Av.
		4.8	9.3	12.8	14.2	Max.
		3.5	6.5	10.6	11.8	Min.
		3.8	7.9	11.7	12.6	Av.
150-159	7	3.8	8.5	12.3	13.0	Min.
		4.1	9.0	12.8	13.2	Max.

American Journal of the Medical Sciences, New Series, v. 138, 1909, page 554.

The cardiac diseases in which an examination by the x-ray is of value may be divided into two classes: (1) those in which data may be obtained which are not obtainable by other methods, and (2) those cases in which the evidence obtained is confirmatory.

Under the first classification we will place the following:

Dilatation of the aorta and aneurysm.
Pericardial effusion.
Adhesive pericarditis.
Functional murmurs.

The second group will include:

Valvular lesions.
Dilatation and hypertrophy.
Myocardial changes.
Heart block.
Auricular fibrillation.
Congenital abnormalities.
Malpositions.

Dilations of the Aorta give a fairly characteristic picture. They may be divided into three distinct types: (1) dilatation of the ascending portion (which is usually specific and which is seen as a sharp bulge to the right just above the curve of the right ventricle); (2) dilatation of the arch, which may be either specific or arteriosclerotic, and which is seen as a sharp prominence of the upper curve on the left; and (3) diffuse dilatation of the aorta, which may be caused by specific disease, arteriosclerosis, or high blood pressure, and which is shown as a general increase in the aortic shadow.

Pericardial Effusion gives a marked change in the appearance of the heart shadow. The various curves seen in the outline of the normal heart are obliterated. It assumes roughly a triangular shape. The angles between the heart and diaphragm are not necessarily absent. They may become more acute. The pulsations may not be visible.

The most important finding is the change of shape of the heart shadow with change of position. With the patient in the upright position if there is free fluid in the pericardium the shadow will assume somewhat the appearance of a water bottle, the upper portion of the shadow being narrowed, and the lower portion or that nearest the diaphragm widened. In the prone position the shadow assumes roughly the appearance of a rectangle. There is an increase in the upper portion and a decrease in the lower. The amount of the change may be very slight, and in order to detect it it may be necessary to make careful tracings and to superimpose them.

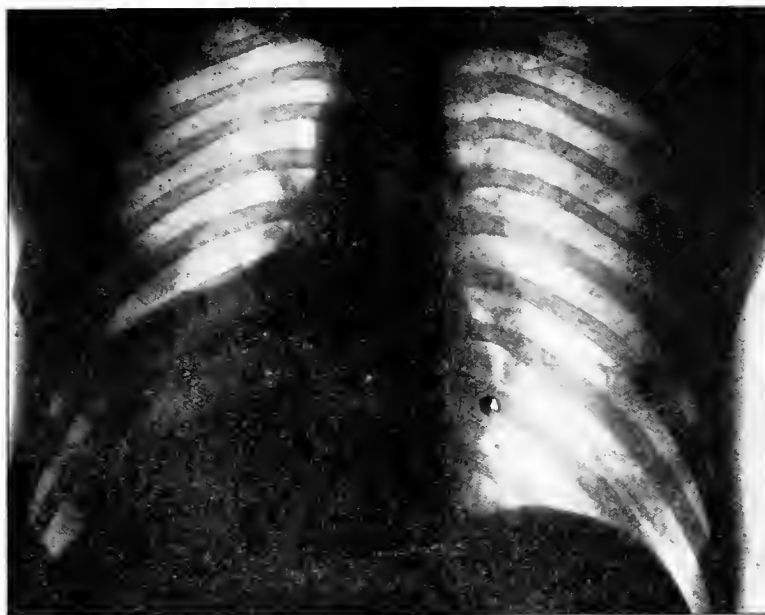


FIG. 12a.—(Same as Fig. 12. Tube film distance two feet.) Note marked distortion and enlargement of heart shadow.

Adhesive Pericarditis. Here the shape of the heart outline may not be in any way affected. It is usually increased in size and rather indistinct. The most significant finding is an absence or marked limitation of the respiratory movements of the heart, as compared with those of the diaphragm.

The Functional Murmurs do not produce any change in the size of the heart, and can be differentiated from organic murmurs by the absence of enlargement. It is in this particular type of case that the accurate measurements of the heart, obtained by the x-ray, are of especial value. We have found this method particularly useful in the examination of recruits.

Valvular Lesions show an enlargement of the chamber of the heart corresponding to the valves affected. Some of these changes are quite characteristic. They help to confirm the diagnosis, and it is possible in many cases to make a definite diagnosis from the x-ray findings alone.

Dilated or Hypertrophied Hearts show a corresponding enlargement of the heart shadow. In hypertrophy the apex is more rounded and blunt. Usually the x-ray findings do not add particularly to the diagnosis, but it is sometimes desirable to keep an accurate record of the size of the heart from month to month in these cases, or it may be necessary to differ-

entiate a dilated heart from a pericardial effusion. The dilated hearts do not change shape with change of position. In questions of nephritis it is sometimes important to demonstrate a small amount of hypertrophy of the left ventricle.

Myocardial Changes are made manifest by changes in the strength, rapidity or irregularity of the pulsations of the various chambers.

Heart Block can usually be demonstrated unless the pulsations are too rapid.

Auricular Fibrillation is usually seen as an absence of pulsations in the auricles, which are very much enlarged, whereas the beat and size of the ventricle are more nearly normal.

Congenital Abnormalities are differentiated by their unusual deformity of the heart shadows.

Displacement of the Heart Shadow, due to tumors, fluid, or other lesions in the chest, are usually demonstrated more accurately by this method than by percussion.

TECHNIC.

It is not necessary in a discussion of this kind, to take up (to any great extent) the technic used in this work. I will, however, call attention to a few important points:

In order to obtain the heart shadow without magnification it is necessary to have the

focal spot of the tube at a distance of at least six feet from the radiographic plate. With modern apparatus it is possible to obtain good diagnostic plates at this distance.

Especial care should be taken to avoid rotation of the patient. The central rays from the tube should pass through the chest in the antero-posterior plane. It is not desirable for the patient to hold the breath. If he is requested to do so he is apt to fill the lungs preparatory to the exposure, and the result obtained will be the shadow of the heart in deep inspiration, which changes both its shape and position. It is better to make the exposure during normal breathing.

The exposure should be long enough to cover a full heart cycle. Otherwise the outline obtained may be either in diastole or systole. The phase of diastole is the one desired, and will be obtained if the exposure covers a complete heart cycle.

A fluoroscopic observation should be made in every case in order that the pulsation and movements may be studied.

DISCUSSION.

DR. H. A. CHRISTIAN, Boston: Mr. Chairman, Ladies and Gentlemen: The first thing to call your attention to is the very practical and very excellent selection that the chairmen of the Sections have made, both of speakers and material for discussion. The next thing I would like to call your attention to is the work of Sir James Mackenzie, not so much what he has said here, but what he has done in his own work, namely, in following the development of the cardiac case.

What the cardiac case can do, whether it is undergoing pregnancy, surviving a surgical operation, or meeting the ordinary stress of life, isn't to be found out by those who see cases in consultation or work in the wards of general hospitals, but by the general practitioner, who sees patients for a long time—over a period of years; and a great deal of exact knowledge awaits the general practitioner, who makes observations on patients and weighs them carefully, and reports them, not after a few years, but after a long number of years, and to that man awaits some of the success that Sir James Mackenzie had in his work. In Bromley, England, a small country

town, he worked, and in those early days nobody ever heard of him, and fifteen years ago he went to London as a consultant and began to express what he had learned, and the world began to learn of it, and, strangely, not the English world. He was much less known in England than he was in America. His writings, his new point of view, had made their impression first on the American public, later on the English public.

It is obviously impossible to discuss a large number of papers, even though they are on the same subject, and I want merely to emphasize a few points. The first one of these is that the problem of whether the cardiac case can undergo pregnancy or not is a distinct problem from the one of whether the cardiac case can be safely operated upon. There are two reasons: one is that the stress of pregnancy is a different kind of stress from that of a surgical operation, both as to character and as to duration; and the second is that the pregnancy concerns the individual under 40, in most cases much under 40 years of age. A great deal of the surgery concerns the individual from 35 or 40 years of age upward. The cardiac lesions that are serious are different in the individual under 40 than in the individual over 40. For instance, the systolic murmur alone is of almost no significance under 40; it is practically negligible. After 40 it may accompany a very serious myocardial lesion; not always is this true, because after 40 it may be equally unimportant, but the chances are that after 40 the systolic murmur is of significance, not in itself but as an accompaniment of myocardial lesion. Just the same thing applies to the arrhythmias. The irregular heart under 40, except where there is a valve lesion such as mitral stenosis or aortic insufficiency, is usually an unimportant fact. Usually the irregularity is due to extra systoles, and as a rule they are unimportant and they have very little influence in determining whether a patient can undergo stress or strain. On the other hand, irregularities after 40 are likely to be of much more significance, because most of the cases of auricular fibrillation without mitral stenosis come after 40, and they are always of serious import, though by no means always contraindicating a surgical operation.

There has not been a great amount of consecutive observation by competent internists on

the cases that undergo surgical operation, and the same thing is true of cases in relation to pregnancy; and by competent internists I mean the man that has the modern conception of the cardiac problem as not being a question of valvular lesion but a question of myocardial efficiency. In December, 1917, the *Journal of the American Medical Association* published a paper from the Mayo Clinic which is very instructive in that it represents the study by modern methods of a considerable number of cases that were subsequently operated on at the Mayo Clinic and were then followed. I will read from the *Journal* of December 15, 1917: "Surgical intervention should not be undertaken in a cardiopath unless there is definite reason to believe that the surgical relief is essential to reasonable health or will improve the cardiac condition. 'Meddlesome surgery' has a fuller meaning in treating cardiopaths." That last sentence coming from a surgical clinic is a distinct criticism of surgery. I presume as it came from a surgical clinic, it is a just criticism. The first part of the quoted paragraph brings out two things: First, that if the surgery is essential to reasonable health, it is in that sense necessary; and as the paper goes on to show, in most cardiac lesions, surgery can be carried out with success if reasonable attention is given to the anesthesia, as emphasized by Dr. Richardson. The other important point which I want to emphasize in that sentence is one that has not been so commonly kept in mind, namely, that the surgery may improve the cardiac condition; in other words, there are a great many conditions—take, for example, a chronic cholecystitis where the patient has a heart lesion—in which not only will the patient's health in general be better as a result of the operation on account of removing symptoms, but in a considerable number of cases the cardiac condition may greatly improve. It is the problem of the source of the toxin, the source of the infection, and its effect on the myocardium. Of course, we always think of diseased tonsils and the benefit their removal may bring to the heart, and the same thing is applicable to many other things on which the surgeon is called to operate; and that is the reason to my mind for advising the patient to be operated on, notwithstanding increased risk from the damaged heart, because you are looking forward to two goods—to the patient's

improvement directly from the surgery, and improvement indirectly in the cardiac condition because you are removing a source of toxins.

One point, I think, is of importance in considering cardiac cases, as to whether they should have anesthesia, and that is the presence of signs of passive congestion, namely, râles in the bases of the lungs. I have a distinct feeling that the pulmonary after-effects of anesthesia often are due to operating on the patient when there is still chronic passive congestion of the lungs that would have been removed by appropriate treatment of the heart for ten days prior to the operation. Of course that only applies to such cases when the necessity for operation isn't immediate.

I am glad Dr. Holmes emphasized the normal variations in the heart shadow as made out by x-ray study. I think we are inclined to neglect that sometimes in interpreting our plates. As far as the x-ray is concerned, I do not think it helps in many cases, as far as the heart is concerned. I do not mean by that that all that Dr. Holmes said isn't true. We can get evidence of the kind of heart lesions, but that evidence is obtained satisfactorily by other methods. On the other hand, I think the x-ray study is of great value when it concerns the study of diseases of the aorta, because it gives us information which we cannot get otherwise, because percussion of increases of size of retrosternal structures is very uncertain in the early stages of dilatation of the arch of the aorta, and those who are honest with themselves will know that we may fail to percuss out dilatations of marked degree of the aorta, and on physical examinations miss an important point in estimating the diseased condition of the patient. The x-ray is very accurate in determining these conditions of the arch of the aorta, and that information is often of extreme value.

The various speakers have spoken of the different forms of heart lesions in relation to surgical intervention in pregnancy, and so on. I have nothing to add except that I wish to emphasize again that the stress should not be placed on the lesions of the valves, but on the evidences of disturbance in the heart muscle, enlargement, dilatation, various forms of arrhythmia, and, most important of all, how far the patient is able to stand stress, as shown by

the history of the patient, indicating whether there has been in the past any symptoms of broken compensation, and the test of the patient,—simple tests,—to see whether they get unduly breathless or have pain or other symptoms of cardiac disturbance when they are submitted to moderate degrees of exercise. The test can be carried out only in that group of patients in whom the surgical condition is not one that particularly incapacitates them. The history can be obtained on all patients, and what Sir James Mackenzie emphasized—on the importance of symptoms—is very applicable there. From the symptomatology you can get a good idea of how much that patient has been able to do without embarrassing the circulation. It does not make much difference what sort of a murmur the patient has, it does not make so much difference about the irregularities of the heart, if the patient has been able to do physical exercise without breathlessness, pain or other cardiac symptoms. As an example of that, there is a long-distance swimmer here in Boston who swims long distances down the harbor and has the most typical signs of mitral stenosis that you can imagine,—a perfectly typical case to give the students beginning diagnosis, yet she swims for many miles in cold water and enjoys the exercise. There is a famous football player who participated in all sorts of exercises during his years in college, and his heart was invariably irregular, yet it was functionally sound. Any patient who can do a reasonable amount of exercise can stand surgery, because surgery, after all, is not a very severe strain, and to a less extent they can stand the strain of pregnancy.

Book Reviews.

Food Poisoning. By EDWARD OAKES JORDAN. Chicago: The University of Chicago Press. 1917.

This volume is an analysis of the source and nature of food poisoning. The problem is one which has not received sufficient consideration, due to the fact that few cases are reported. Food poisoning is caused either by some injurious constituent in the food itself or by some peculiar condition of the individual. The articles of food most commonly responsible for food

poisoning are: meat, milk, ice-cream, imperfectly cooked food, raw sausage, and canned goods. Several phases of the food poisoning problem are presented: sensitization to protein foods, poisonous plants and animals, mineral or organic poisons added to food, food-borne pathogenic bacteria, animal parasites, poisonous products formed in food by bacteria and other micro-organisms, and poisoning of obscure or unknown nature. The author emphasizes the need of further investigation of every food poisoning outbreak in order that the origin of unexplained food poisoning may be recognized.

The Sense of Taste. By H. L. HOLLINGSWORTH, PH.D., and A. T. POFFENBERGER, JR., PH.D. New York: Moffat, Yard and Company. 1917.

This volume is an interesting survey of the phenomena and laws of the sense of taste. The author believes that taste is important not only as a discriminating factor in the acceptance or rejection of food, but also as a stimulus to the digestive and assimilative processes of the organism. This book attempts to portray man's contact with the outer world through the sense of taste. The actual experiences which the sense of taste affords are considered: their character, elementary qualities, classification, relation and combination. Among other topics considered are: the sensitiveness of taste, the time relations of taste qualities, various special characteristics and phenomena of normal and abnormal tastes, the mechanism and function of the organ of taste, its structure and anatomy, its evolution in the individual and in the lower animal forms, and the esthetic value of taste.

Handicaps of Childhood. By H. ADDINGTON BRUCE. New York: Dodd, Mead and Company. 1917.

"Handicaps of Childhood" presents in an illuminating way the responsibility of parents in developing their children by early mental and moral training. Mr. Bruce shows how the recent discoveries in child psychology are revolutionizing the methods of dealing with children. This book reveals the various aspects of the child's consciousness, and corrective measures are suggested for overcoming eccentricities in behaviour, so that the child may be brought into the right relation with the world about him. Such handicaps as mental backwardness, sulking, jealousy, selfishness, bashfulness, stammering and night terrors often result in serious consequences which the parent might avert. The author believes that early training, particularly in the moral sphere, is the greatest contribution parents can make to the next generation.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

OFFICIAL ANNOUNCEMENT: THE VOLUNTEER MEDICAL SERVICE CORPS.

AN APPEAL TO EXECUTIVE COMMITTEES AND COUNTY REPRESENTATIVES OF THE VOLUNTEER MEDICAL SERVICE CORPS, AND STATE COMMITTEES OF THE COUNCIL OF NATIONAL DEFENSE.

No official or committeemen representing the Volunteer Medical Service Corps or the General Medical Board of the Council of National Defense, is now authorized or has been authorized to favor any organized or unorganized method of coercion in inducing members of the medical profession to join the Medical Corps of the Army or Navy, or the Volunteer Medical Service Corps. Our committeemen are especially urged against favoring any movement that would threaten to impair a medical man's standing in his local, state or national society because he refused to enroll in the

Army or Navy, or the Volunteer Medical Service Corps.

It must be made clear that the Volunteer Medical Service Corps is a volunteer organization, which has for its object the enrollment and classification of the profession. Its members are entitled to wear an insignia which will clearly indicate that they have offered their services to the Government, when such services are needed. Patriotism cannot be created by coercion. It also must be made clear that the Volunteer Medical Service Corps has for its primary object, furnishing its classification to the Army, the Navy, the Public Health Service, the Red Cross and Provost Marshal, as well as to civilian institutions and communities, as a guide, in providing for their needs to the best advantage.

The object of the Corps is not to disturb any medical man in the performance of any duty to which he has been assigned by any governmental agency either for service at the front or at home.

(Signed)

EDWARD P. DAVIS, *President*,
Volunteer Medical Service Corps.
FRANKLIN MARTIN, *Chairman*,
General Medical Board, Council
of National Defense

VOLUNTEER MEDICAL SERVICE CORPS.

It is singularly unfortunate that a certain amount of opposition to the Volunteer Medical Service Corps has developed in quarters from which it should have been least expected. In another column of this issue of the JOURNAL are published several pieces of correspondence bearing upon this subject, including copies of the correspondence between the Provost-Marshal General's Office and Major Thomson, relative to the Volunteer Medical Service Corps.

The Volunteer Medical Service Corps was designed primarily to save the face and maintain the dignity of the medical profession by segregating its members from the draft and insuring their universal volunteer service in this great national exigency. Whatever personal opinions as to methods of administration may be, it manifestly defeats the purpose of the organization if any appreciable number of physicians fail to enter it. To antagonize the plan of the Volunteer Medical Service Corps is to oppose,

perhaps unconsciously, the principle of universality of service.

In private conversation, several physicians have said that they did not wish to join the Volunteer Medical Service Corps because to do so was equivalent to giving the Government a blank check on oneself. Surely the present crisis in the world's history is one in which that is exactly what every one should wish to do.



AMERICAN PUBLIC HEALTH ASSOCIATION.

THE United States Public Health Service is asking Congress for a ten million dollar deficiency appropriation for war-time health purposes. The efforts of the Service is to be concentrated in communities congested by war preparations, such as industrial centers, various surrounding cantonments, and shipyards.

The consideration of the war program of the Public Health Service will take up a full session on Tuesday evening, October 15, at the annual meeting of the American Public Health Association. Surgeon-General Blue, Assistant Surgeons General McLaughlin, Schereschewsky, and Warren, and Surgeon J. O. Cobb, will outline the plans of the Public Health Service in detail. A round-table discussion will follow these presentations.

The passage of Senate Resolution 63 is advocated. This proposes to establish a Sanitary Reserve Corps and the commissioning in the Public Health Service of men of national repute in the various phases of health administration.

Full-time health officers for all States is urged, and also for municipalities. In larger communities a health appropriation of fifty cents per capita will be recommended, with a minimum appropriation of five thousand per annum for smaller towns.

The full program of the Public Health Service is printed in the issue of Public Health Reports of September 27, and all interested, especially those who expect to attend the annual meeting of the American Public Health Association, are requested to study this article. It contemplates a thorough supervision of all war industries and communities surrounding them; railway sanitation for the benefit of both em-

ployees and the traveling public; supervision of milk, water, and food supplies; infant welfare, etc.

Among the other speakers at the American Public Health Association Convention will be the following:

Col. V. C. Vaughan, M.C. "The Health of the Civil Population in War Time."

Major William H. Welch, M.C. "Some Public Health Problems and Opportunities Created by the War."

Dr. Charles J. Hastings. Presidential Address.

Dr. George E. Vincent, President, Rockefeller Foundation. "Team-play for Public Health."

Lee K. Frankel, Ph.D., Treasurer, American Public Health Association. "Future of the American Public Health Association."

Ernest S. Bishop, M.D., New York Polyclinic Medical School. "War-time Importance of Narcotic Drug Addiction."

As usual, there will also be section meetings devoted to public health administration, industrial hygiene, laboratory, vital statistics, food and drugs, sanitary engineering, and sociological health problems.

The convention will be held October 14-17, with headquarters at Hotel Morrison, Chicago.

Programs may be obtained from the secretary of the American Public Health Association, 126 Massachusetts Avenue, Boston.



THE GRIP SITUATION: A CORRECTION.

In last week's issue of the *Journal*, we regret to say, Dr. Walter L. Burrage was misquoted in his alleged statement about the seriousness of the prevalent epidemic of influenza. As a matter of fact, Dr. Burrage made no statement in this regard to the public, nor was it his personal opinion that the situation is not made more difficult by the shortage of civilian physicians.



MEDICAL NOTES.

NEW LABORATORY GIVEN TO SANTA BARBARA.—One of the finest laboratories and clinics for research work in medicine and surgery is to be provided for Santa Barbara by several of

its citizens. The building is to be built at the Cottage Hospital, as another wing of the present structure, and will be used by Dr. Nathaniel Bowditch Potter for research study in connection with diabetes, Bright's disease, and kindred ailments.

WAR NOTES.

APPOINTMENTS IN MEDICAL RESERVE CORPS.—

The following appointments in the Medical Reserve Corps have been announced:

Captains: Walter Fullerton, Brockton; Frederick Everett, Springfield.

First Lieutenants: Joseph Devenny, Dorchester; Dana Downing, Westboro.

ARMY AND NAVY MEDICAL CORPS.—Applicants for the Medical Corps of the Army should make application either to Capt. John T. Bottomley, 165 Beacon Street, Boston, or to Capt. Philip Kilroy, 61 Chestnut Street, Springfield. The examiners have application blanks, and will communicate all details as to membership in the Corps. Applicants for the Medical Corps of the Navy should apply to Capt. John M. Edgar, Naval Aid Department, Little Building, 80 Boylston Street, Boston. Captain Edgar has the application blanks, and will give full information as to the requirements and the physical examination.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 28, 1918, the number of deaths reported was 992, against 230 last year, with a rate of 65.95, against 15.53 last year. There were 68 deaths under one year of age, against 65 last year.

The number of cases of principal reportable diseases were: diphtheria, 35; scarlet fever, 6; measles, 3; whooping cough, 34; typhoid fever, 3; tuberculosis, 51.

Included in the above were the following cases of non-residents: diphtheria, 7; scarlet fever, 2; whooping cough, 1; tuberculosis, 3.

Total deaths from these diseases were: diphtheria, 1; whooping cough, 12; typhoid fever, 1; tuberculosis, 25.

Included in the above were the following non-residents: whooping cough, 4; tuberculosis, 2.

Miscellany.

VOLUNTEER MEDICAL SERVICE CORPS OF THE UNITED STATES.

AUTHORIZED BY THE COUNCIL OF NATIONAL DEFENSE AND APPROVED BY THE PRESIDENT OF THE UNITED STATES.

INFORMATION.

1. *What is the Volunteer Medical Service Corps?*—The Volunteer Medical Service Corps is an organization which provides means for obtaining quickly men and women for any military or civil medical service required in the war emergency. It furnishes recommendations and necessary credentials to assure the best medical service, both military and civil.

2. *How should application for membership be made?*—Upon request to the Volunteer Medical Service Corps, Council of National Defense, Washington, D. C., application blanks and circulars of information will be sent. When received, the application form should be filled out completely, in accordance with instructions contained in the circular of information. The application should then be mailed to the Volunteer Medical Service Corps, Council of National Defense, Washington, D. C.

3. *What is to be gained by the creation of this organization?*—Placing on record all medical men and women in the United States; aiding Army, Navy, Public Health Service, Provost Marshal General's Office and the American Red Cross in supplying war medical needs; providing the best civilian medical service possible; giving recognition to all who record themselves either in Army, Navy, Public Health Service, Provost Marshal General's Office, Red Cross activities or civilian service.

4. *What is meant by classification?*—It is the record of information furnished by the individual physician so that when the need arises, he may be requested to perform service that will be mutually advantageous to the individual and the service to which he may be assigned.

5. *Who are eligible?*—Every legally qualified physician holding the degree of Doctor of Medicine from a legally chartered medical school without reference to age or physical disability is eligible for membership in the Volunteer Medical Service Corps provided he or she is not already commissioned in the Government service.

6. *How is eligibility to the Corps determined?*—Upon information obtained from application blanks, three personal references and the Executive Committee of the state in which the applicant resides. Based upon the information thus secured, the Central Governing Board will finally pass upon applications.

7. *Does membership in the Corps carry with*

it rank and pay?—This Corps is not authorized to bestow rank. Arrangements for compensation shall be made between a member requested to perform a specific duty and the agency requesting service. The matter of compensation and place of service whether with or without rank must be determined at the time said request is made. When a member of the Corps accepts service in the Medical Service Corps of the Army, the Naval Reserve Force, the United States Public Health Service, the American Red Cross or any governmental department, he or she will be accorded the rank and pay incident to the service in the department in which he or she has enrolled.

8. *Will any member of this Corps be ordered to active duty?*—No member will be ordered to render any service. Requests to perform specific duties according to qualifications and availability under the classification of the Volunteer Medical Service Corps may be made from time to time as emergencies arise.

9. *What will be the probable character of service member will be requested to render?*—

- (a) Medical Reserve Corps.
- (b) Naval Reserve Force.
- (c) United States Public Health Service.
- (d) American Red Cross.
- (e) Local and medical advisory boards.
- (f) State and local health departments.
- (g) Medical Schools and Hospitals
- (h) Industrial plants.
- (i) Civil communities.

Caring for civil communities, stripped of medical attention.

Caring for practices of physicians in military service.

Reclamation of registrants rejected for physical unfitness.

Services to needy families and dependents of enlisted men.

- (j) Miscellaneous service.

10. *If members of the Corps are recommended for active military or naval service, in what order will they be recommended?*

(a) Physicians under 55 years of age without dependents and without physical disabilities which are disqualifying will first be recommended. Following this group, physicians under 55 years of age without obvious physical disabilities which are disqualifying and with not more than one dependent in addition to self (Class I of the Volunteer Medical Service Corps) will be among the first to be recommended for actual war service. Any physician under 55 years of age who is without an obvious physical disability which is disqualifying and whose dependents have an income sufficient for the support of dependents other than that derived from the practice of his profession, may be recommended to enroll in the Medical Reserve Corps of the Army, the Naval Reserve Force or the United States Public Health Service, when, in the opinion of the respective Surgeons General, his services are needed.

(b) Physicians under 55 years of age without obvious physical disabilities which are disqualifying and with not more than three dependents in addition to self (Class II of the Volunteer Medical Service Corps) will be the next group to be recommended to apply for active military or naval service.

(c) The next group recommended to enroll for active duty with the Army, Navy or Public Health Service (Class III), will be physicians under 55 years of age who are without obvious physical disabilities which are disqualifying and with more than three dependents in addition to self.

11. *What are the exceptions in these groups?*—The exceptions in the above groups of physicians are as follows:

- (a) Those essential to communities.
- (b) Those essential to medical schools and hospitals.
- (c) Those essential to health departments.
- (d) Those essential to industries.
- (e) Those essential to local and medical advisory boards.

12. *How will exceptions to these groups be determined?*

(a) *Essential to communities.*—Essential community need will be determined by the Central Governing Board on recommendation of representatives of the Central Governing Board appointed by the Board to make a survey of local conditions.

(b) *Essential to institutions.*—Essential institutional need will be established after conference between representatives of the Central Governing Board of the Volunteer Medical Service Corps and representatives appointed by the governing bodies of the institutions concerned.

(c) *Essential to health departments.*—Essential health department need will be determined after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and representatives of health departments.

(d) *Essential to industries.*—Essential industrial need will be determined after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and accredited representatives of industries involved.

(e) *Essential to local and medical advisory boards.*—Essential local and medical advisory board needs will be determined after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and representatives of the Provost Marshal General's Office.

13. *When will physicians who are not classified for actual military or naval service be requested to perform service?*—When the emergency arises the following may be requested to perform duties in accordance with their qualifications and expressed merits as indicated by the information contained on their application blanks:

- (a) Physicians over 55 years of age.
- (b) Physicians with obvious physical disabilities which are disqualifying.
- (c) Those rejected for all government service because of physical disability.

14. *What are some of the duties that this last group of physicians ineligible for active military service may be requested to perform?*

(a) Deducting those members of the medical profession who will eventually be in active military, naval or public health service, fully 75 per cent. of the remainder will be encouraged to continue at the home duties.

(b) Some of these may be called upon to supplement their private practices by performing part time service to meet community needs hitherto performed by men called to active duty.

(c) Twenty-five per cent. of those not actually engaged in war service (possibly 20,000 in number) who are not engaged in home duties but who have agreed to do work of any kind, anywhere, upon request of the Central Governing Board, will as the emergency arises be recommended for duty in the following places:

1. Local and medical advisory boards.
2. Medical Schools and Hospitals.
3. Industrial plants.
4. Health Departments.
5. Communities lacking medical service.

15. *How does enrollment in this Corps differ from actual conscription?*—The Volunteer Medical Service Corps is exactly what its name indicates. It is a gentleman's agreement on the part of the civilian doctors of the United States who have not yet been commissioned in the Army or Navy or enrolled in the Public Health Service, or in the service of the Provost Marshal General, and a representative board consisting of government officials associated with lay members of the profession in which the civilian physicians agree to offer their services to the Government if requested to do so by the Central Governing Board.

16. *In what way can this Corps aid the Government?*—By recording all physicians who are not yet in service and classifying them so as to utilize the talents and facilities of individuals to the best advantage and inflict as little hardship on the individual as possible, in accordance with the letter from the President of the United States authorizing the Corps—"to supply the needs of the Army, Navy and Public Health Service * * * aiding in the important work of the Provost Marshal General's Office and Red Cross * * * and the problems of the health of the civilian communities of the United States." It provides a method by which every physician not in uniform will be entitled to wear an insignia which indicates his willingness to serve his Government. It furnishes a method by which the medical needs of the nation may be provided for through a representative board of physicians who know

the needs of the Army, Navy, Public Health Service, Red Cross and civil communities.

17. *To what extent must provision be made for essential civilian and industrial medical needs?*—A large percentage of the physicians of the country will be required to care for their respective home communities and to meet civilian health needs. This percentage of necessity will be expected to maintain their home status and continue their professional work.

18. *Will enrollment in the Volunteer Medical Service Corps excuse a physician in the draft age from registration under the Selective Service Law or from being classified therein?*—Positively not.

19. *Why then enroll in the Volunteer Medical Service Corps if it does not supplant the draft?*

(a) Under the Selective Service Law individuals in the draft age are registered and inducted into the service as privates. The Volunteer Medical Service Corps enrolls and classifies individuals as prospective commissioned officers and will when requested assist in establishing the individual's status when he requests transfer from the enlisted forces to the commissioned branches of the service.

(b) Enrollment in the Volunteer Medical Service Corps definitely registers the physician as a patriot and provides definite governmental recognition of his willingness to serve.

20. *Why should every physician in the United States enroll in the Volunteer Medical Service Corps?*

(a) The unsurpassed record of volunteer enrollment for actual service on the part of the medical profession must be maintained.

(b) The Army and the Navy must not be hampered for a moment for lack of doctors to care for the sick and wounded boys fighting our battles at the front.

(c) The public health must be conserved.

(d) The medical needs of the Provost Marshal General must be adequately met.

(e) The great industries furnishing materials of war, employing thousands of patriotic workers, must have medical service.

(f) The home folks, the old and the young, wearily waiting over here, must have doctors.

(g) Recording, classifying, and careful distribution and full utilization of our entire profession of medicine will enable us instantly to supply all demands, and our utmost resources will then be available to aid in establishing a permanent peace that will forever make this world a safe place in which women and children may live.

Correspondence.

VOLUNTEER MEDICAL SERVICE CORPS.

[The following correspondence deals with various aspects of the project of the Volunteer Medical Service Corps.]

I.

Boston, Mass., Sept. 4, 1918.

To: The Provost Marshal-General, U. S. Army,
Washington, D. C.,
Subject: The exemption of workers in the campaign
against venereal disease.

1. Attention is invited to the enclosed correspondence.

2. Attention is invited to the fact that the recruiting drive of the Council of National Defense has disrupted the already efficient clinics for venereal disease in New England and is making it impossible to provide additional facilities which are sorely needed.

3. In the attempt to reach the draftee, in compliance with P. M. G. O. Form 76, clinical facilities for the treatment of cases found among the draftees are vitally necessary and the State venereal disease control officers, coöperating with the U. S. P. H. Service, are at present and will be in the future greatly handicapped without adequate medical and lay personnel.

4. Instruction and advice are requested on this matter so that we shall be able to formulate a definite policy, and it is respectfully suggested that the Provost Marshal-General notify the State Health Departments of the action that may be taken and that some type of instruction be issued to the Council of National Defense in this regard.

ALEC N. THOMSON, Major, M.C., U.S. Army,
State House, Boston, Mass.

II.

Sept. 5, 1918.

To: Provost Marshal-General, U.S.A., Washington,
D. C.,
Subject: Maintenance of civilian personnel in combating venereal disease.

1. The attached correspondence is self-explanatory and is forwarded to receive instruction so that I may comply with the request of the Boston Dispensary and other institutions of similar character for information on this vital subject.

2. It is becoming increasingly more difficult to establish new clinics and maintain the existing clinics because of the active recruiting drive being carried on under the auspices of the Council of National Defense for physicians to make applications for commissions. The feeling is general that any physician is unpatriotic who, realizing his peculiar relation to the War Department's effort to control venereal disease, does not immediately fill out an application blank. This is unfortunate and, if possible, should be counteracted by some definite statement.

ALEC N. THOMSON, Major, M.C., U.S.A.,
Chief, Subdivision of Venereal Disease,
State House, Boston, Mass.

III.

War Dept., P.M.G.O., September 10, 1918.

To Alec N. Thomson, Major, M.C., U.S.A.,
State House, Boston, Mass.

1. Referring to Paragraph 4 of your letter of September 4, it is not probable that the Provost Marshal-General will issue instructions of a specific nature directly to organizations not a branch of the Government nor functioning under him.

2. The Medical Section of the Advisory Committee of the Council of National Defense is not recognized as such branch of the Government, but is a very active body, interesting itself with physicians.

3. The District Boards will have instructions issued to them under which they may give deferred classification to necessary men engaged in essential

occupations or industries, upon claim supported by satisfactory evidence submitted by their employers.

4. No physician should be stigmatized as unpatriotic who continues to perform a manifest duty to Draft Boards, public health organizations or to his dependents first.

E. H. CROWDER, Provost Marshal-General,
By F. R. KEEFEE, Colonel, M.C.,
Chief, Medical Division.

IV.

Boston, Mass., Sept. 10, 1918.

Mr. Editor:—

The enclosed clipping, from *The Journal of the American Medical Association* of Sept. 7, 1918, is such an admirable critique of the Volunteer Medical Service Corps that it deserves wide reading. Those of us who have been struggling with the problems of keeping our civil hospitals going and of providing teachers for our medical schools, have been so much handicapped by the activity of the committees of one sort or another who besiege the men with conflicting requests and advice, that we endorse heartily the opinion of the *Journal of the American Medical Association* in regard to the Volunteer Medical Service Corps.

Will you be good enough to publish this clipping and, if you desire so to do, also my letter in the BOSTON MEDICAL AND SURGICAL JOURNAL.

Yours truly,
HENRY A. CHRISTIAN.

(CLIPPING.)

To the Editor:—There seems to be a considerable variation of opinion in regard to the Volunteer Medical Service Corps. Martin and his element seem to be pushing things with a pretty high hand, with their committees, sub-committees, little buttons, regulations—everybody to register or sign up. We are at a loss to know what is right.

W. E., Michigan.

ANSWER.—The formation of a new and special organization for the purpose of enlisting physicians in war service has from the beginning seemed to *The Journal* unnecessary and unwise. The needs of the Army and Navy have been met promptly so far by voluntary enlistments, and there has been no indication that the needs of the future would not have been satisfied in the same way, even under the volunteer system. However, the passing of the new selective service law now renders such an indefinite and indeterminate society as the Volunteer Medical Service Corps superfluous and uncalled for. The vigorous promotion of this organization is creating a regrettable confusion and anxiety among physicians that should be avoided in these trying times. This is no time to fritter away energy in the construction and maintenance of intricate machinery of questionable value to do work which is being done and will be accomplished satisfactorily through regularly established channels.

Every man, including physicians, under 46 years of age, must register on September 12. The selective service boards are the only bodies empowered to dispose of those registered under the law. This will be done under the regulations promulgated by the Provost Marshal-General. Undoubtedly special regulations for the guidance of those boards will be worked out by the Provost Marshal-General conferring with the Surgeon-Generals. So far as those above 46 years of age are concerned: They will have in the future, the same privilege of volunteering as they have had in the past. The operation of the new selective service law will, without doubt, take into account the needs of the civilian population while providing for the medical requirements of the government.

The Boston Medical and Surgical Journal

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Original Articles.

INDUSTRIAL ANILIN POISONING IN MASSACHUSETTS.

BY THOMAS F. HARRINGTON, M.D., BOSTON,

Medical Deputy Commissioner of Labor, Massachusetts.

THE manufacture of anilin in this country is one of the direct results upon industry produced by the war. In many parts of the United States new industrial plants have sprung up and many old ones have been wholly transformed in order to meet the demands for anilin and substances closely allied to it, that were formerly supplied almost wholly from Germany. Of necessity, the problem of production of material superseded that of protection to the workman. Added to this was the fact that very few physicians in this country had had sufficient experience with the anilin industry to recognize poisoning by that substance. Happily, much of this unpreparedness, both in manufacturing and in medicine, has now been overcome, and anilin poisoning is today a well-recognized industrial hazard, both in the chemical industry and in many manufacturing processes where preparations of anilin are employed.

In Massachusetts the various industries have given to the department of labor and industries a sufficiently large number of cases of industrial anilin poisoning to serve as a basis of presenting to the medical profession a brief digest of the nature, the symptoms, and the consequences of poisoning by this important and useful substance.

Properties. Anilin (amidobenzene— $C_6H_5NH_2$) also known as anilin oil, is a colorless fluid, which upon exposure to light and air gradually becomes dark in color. It has an aromatic odor and only slight local irritating effect. It volatilizes at room temperature; its boiling point is high—182 degrees Centigrade.

Manufacture. The manufacture of anilin starts with coal tar, which is a mixture of benzene (C_6H_6), toluene, xylene, etc., all of which are volatile poisons and responsible for a large number of fatal industrial cases recorded in literature. Benzene is treated with nitric and sulphuric acids to form nitro-benzene ($C_6H_5NO_2$), a poison having a mortality of from 30 to 40%; nitro-benzene is reduced by means of iron filings and hydrochloric acid to anilin. The most important colors are made by the action of nitrous acid on anilin and the allied aromatic amins, thus there are opportunities for industrial poisoning from benzene,

nitrobenzene and anilin, as well as from a multitude of similar bodies used or produced in the various processes, *e.g.*, nitrophenols, nitrochlorbenzens, and the naphthylamins. The use of wood alcohol as a reagent adds to the industrial bazard.

Toxicity. Pure anilin does not cause poisoning; but pure anilin is not used in industry. What is usually known as anilin is a mixture of anilin (amido benzezne) with meta-toluidin, paratoluidin and ortho-toluidin and xyloidin in varying proportions.

Poisoning may occur in the manufacturing of anilin and its derivatives, *e.g.*, anilin dyes, pharmaceutical preparations, photographic materials, etc., as well as in dyeing establishments and rubber industries.

The poison may be absorbed: (a) through the unbroken skin (the usual method of poisoning), by direct contact, or from saturated clothing; (b) by the inhalation of vapors and impalpable dust; or (c) by the swallowing of dust with food or saliva.

The para compounds are more poisonous than the ortho and meta compounds. In a general way, the basic dyes are more poisonous than the acid dyes. This is especially true with such dyes as saffron yellow, anilin orange, Manchester yellow, the aurantia, corbulin, fast black, and Bismark blue. The anilin dyestuffs are, as a rule, non-poisonous, while the alpha and the aryl compounds of anilin, like their homologues, are all especially poisonous.

The warning given by most volatile poisons (irritation of the eyes and throat) is wanting in anilin poisoning. Yet anilin is toxic in even smaller doses than benzene, chloroform, or carbon disulphide. Toxic symptoms follow the inhalation of from 0.1 to 0.25 grams of anilin, while it takes from 1 to 1.1 grams of carbon disulphide to produce symptoms of poisoning. A case recorded in literature states that anilin poisoning occurred in a boy who slept with an elder brother who, just before going to bed, had rubbed anilin on frost-bitten fingers. The toxic action of anilin is more pronounced in warm, moist workrooms and during hot, sultry weather.

Uses. Anilin is used for the manufacture of diphenylamine (used in smokeless powder works), for the manufacture of tetryl, and for the explosive tetranitranilin, or T.N.A.; also used in the manufacture of anilin dyes, photographic materials, colored phenols, and explosives, as

well as an aid and an accelerator in vulcanizing and in tire building. It is also used extensively for coloring in the liberal arts, and in cotton printing in the textile industry.

Symptoms. Anilin is primarily toxic to the nervous system and red blood corpuscles (destruction). The symptoms may vary with the compounds used, as well as with the personal susceptibility of the worker. Many observers contend that blondes are more susceptible than brunettes, and young persons more susceptible than persons of middle age, especially to acute violent anilin poisoning.

Poisoning may take place from absorption through the unbroken skin by direct contact (including saturated working clothes), through the digestive system (dust swallowed), and through the respiratory system (fumes inhaled). It may affect the cardiovascular system, the genito-urinary system, the muscular system, as well as the eyes and ears.

The first symptom of anilin poisoning is pallor, which soon changes to a striking bluish color, especially in the lips, that gives to the worker the name "blue man" or "blue boys." Weariness, sleepiness, flushing of the face, a sense of fullness in the head, slight mental confusion, dryness of throat and difficulty in swallowing, soon develop, with a weak and rapid pulse, subnormal temperature, intense headache, dizziness, nausea, dyspnea, increased mental confusion, loss of consciousness, convulsions, coma and death.

Mild cases of anilin poisoning may exhibit pallor of the skin and mucous membrane, with slight cyanosis; a feeling of weariness and weakness, with vertigo, reeling and unsteady gait. These workers show lack of elasticity of movement, slow labored speech, irritability (anilin "pipp"), and a condition resembling inebriation (loquacity, gayety, and defective power of orientation). Later there is a loss of appetite, constipation, and tense rapid pulse. If the poisoning goes on or if the intoxication is more severe, the worker develops a swarthy, dark blue cyanosis, with a bounding pulse and symptoms of metahemoglobin, resulting in "air hunger," due to the destruction of the red corpuscles, *viz.*, frequency of respiration, lowering of sensibility, obliteration of reflexes, vomiting, strangury and bloody urine.

In cases even more severe there is sudden prostration, cold pale skin, blue lips, nose and ears, lowered or even lost sensibility, small

pulse and death in a comatose condition, often preceded by convulsions.

Subacute and chronic poisoning by anilin is manifested by anemia, slowness of the pulse, disorder of digestion (eructations, vomiting, diarrhea, dislike for food), headache, ringing in the ears, vertigo, disturbance of the sensibility, and often of motility, spasmodic muscular pains. There is commonly an eczematous and pustular eruption on various parts of the body, especially on the scrotum.

One of the characteristic manifestations of poisoning by benzene derivatives is more or less typical of anilin, namely, the delayed onset of serious symptoms after exposure, at times not occurring until some hours after the worker has left the poisonous atmosphere. Many German authorities refer to the frequency with which tumors of the bladder (adenomatous or carcinomatous) occur among anilin workers, supposed to be caused by anilin products of decomposition excreted by the bladder. Recovery in mild cases is prompt, the worker returning to work after a brief spell in the outer air or usually on the next day. The cyanosis often persists for several days more. Some workers establish a tolerance for the poison and do not suffer a second attack; the reverse is, however, the rule, and an acute attack is more apt to make the worker more susceptible.

The blood changes produced by anilin are characteristic. It is turbid and brownish, which shows a spectroscopic band that comes quite close to that of methemoglobin. There is a transient leucocytosis from 30,000 to 40,000, and both the circulating blood and the bone marrow show evidence of efforts toward regeneration of the red cells (megaloblasts, nucleated reds, and basophilic granules). Small repeated doses of anilin produce an increase in the number of red corpuscles with loss of hemoglobin, low color index, degeneration, and imperfect regeneration of red corpuscles, decrease in polymorphous leucocytes, and increase of lymphocytes.

Blood examination is one of the most reliable means for diagnosing anilin poisoning, especially in chronic cases. A fall of 15 to 20% in hemoglobin estimate suggests poisoning, especially if accompanied with stippled cells. Later hemoglobin in the urine is characteristic; the rapid pulse of low tension, dyspnea, and odor of anilin in breath, even before cyanosis or

dark-colored urine has developed, confirm anilism.

Treatment. The first aid treatment of cases of anilin poisoning consists in the removal of the worker to fresh air and keeping him awake. If possible, oxygen inhalations, pulmotor, and heart stimulants, especially black coffee and camphorated oil. Sponging with acetic acid (or vinegar) or ammonia acetate is helpful. Warm saline solutions should be given, hypodermoclysis, and by rectal injections, and by direct venous transfusion if pulse is not too weak.

The preventive measures include adequate ventilation; the removal of dust and fumes; the substitution of closed nitration method for the more open one commonly employed; wet or vacuum sweeping in place of dry sweeping; adequate washing facilities; protection of the skin (gloves, long sleeves and special work clothes) against skin absorption; respirators, prohibition against eating in workrooms where anilin is manufactured, used or stored; and, lastly, instruction to workmen as to the danger and early signs of anilin poisoning. Even when all these protective measures are carefully carried out, the necessity of periodic blood examinations and constant medical supervision promises the surest protection to workers.

The following cases of industrial anilin poisoning taken from the records of the State Board of Labor and Industries in Massachusetts are typical of different manifestations of that hazard:

CASE 1. A man, white, 36 years of age, employed in making automobile tires for a period of one month, while lowering a cask of anilin oil onto skids spattered some of the oil onto his clothing. He was instructed to change his clothing, which he refused to do. Three hours later he was seized with headache, vertigo, slight tremor, disturbance of gait, marked cyanosis, chills, contracted pupils, weak rapid pulse (124). He was removed to the open air and first aid treatment applied. He was able to return to work three days later, but on account of shortness of breath, dyspnea, muscular weakness and lack of strength was unable to continue work at his former occupation.

CASE 2. A man, white, 34 years of age, employed for a period of seven months as a general laborer in a rubber factory making auto tires, at the end of a shift, threw his working clothes onto the floor behind the oil box. On

resuming work the following night his work clothes were well saturated with anilin oil. He made an effort to wash off the oil and then wore the wet clothes. His work began at 11.00 p.m. At 3.50 a.m., he had a slight convulsion, and at 5.00 a.m. a more severe one, with headache, vertigo, pronounced cyanosis, general weakness, dyspnea, and a pulse of 100. He was given first aid treatment and removed to his home, where he was confined to the house on account of general weakness, nervousness, mental confusion, and loss of power for a period of two weeks, and has not been able to return to his former occupation.

CASE 3. A man, 40 years of age, white, employed as a mill helper in a rubber factory, began work on a night shift, starting at 11.00 p.m. His overalls had become soaked with anilin oil and three hours later he was seized with a vertigo, blurred vision, marked abdominal pain (colic), cyanosis, dyspnea, general weakness, a weak pulse, rate 84. First aid was administered and the man removed to his home. He had a tingling sensation of the feet which persisted for more than twelve days after the acute attack. The man was not permitted to return to his former occupation.

CASE 4. A man, 30 years of age, white, employed as a rubber mixer for the past six months, where his duties consisted of mixing anilin into batches of rubber mixture. Ventilation is perfect in this department, and all anilin is confined in closed vessels. In the process of manufacture anilin is fed into the batch of rubber from an automatic sprinkling can. The only opportunity for poisoning consists in spilling the solution onto the hands or by inhaling it from the hot rolls in the milling process. This man complained of nausea, accompanied by dizziness and headache, and was obliged to give up work for treatment. He returned to work the following day and again experienced the same symptoms. After two days' rest he returned again to work, when he was seized with vertigo, headache, nausea, cyanosis, and had a pulse of 110. After recovery, he was transferred to an outside job.

CASE 5. A man, 56 years of age, white, employed as an oil tank tender, giving out anilin oil to the workmen on the mixing machines in a rubber establishment, was overcome with dizziness, vertigo, headache, shortness of breath, and cyanosis. He was taken to the outer air, and after a short time recovered sufficiently to

return to work. Later in the forenoon he developed marked cyanosis of face and hands, nausea and intestinal colic. He went home and returned later in the day to finish the day's work. Dizziness and mental confusion and unsteadiness developed, and in an effort to reach the outer air he fell unconscious in the passageway, where he was discovered later by a fellow workman. First aid treatment was administered and the man removed to his home later, where he was confined for three weeks, unable to return to work.

An examination of his clothes did not show any evidence of anilin staining, neither did his hands, nor gloves, nor arms show any evidence of anilin at the time of his acute attack. He states that the odor of anilin nauseated him on beginning work on the day of his illness, but as he had a similar attack two years before, he attempted to work out the day. From the evidence at hand, it would appear that this was a case of acute poisoning by inhalation.

CASE 6. A man, 50 years of age, white, employed in the chemical department, where his duties consist in tending to the boiling of a mixture, the batch of which is anilin oil. During the day the man complained of dizziness, palpitation of the heart, and contraction of the muscles of the throat, and was observed by a fellow workman to become cyanotic and deeply purple; before he could be warned he became unconscious and fell at the machine. Diagnosis of acute anilin poisoning made. The man was incapacitated for three weeks.

CASE 7. A man, 32 years of age, white, employed as mill hand in a rubber factory for more than a year. His duties consisted in mixing crude rubber with other chemicals to which anilin oil is added. This oil is poured from a container or can with a handle and an uncovered mouth similar to that of a milk can, and in pouring the oil into the hot rubber mixture considerable fumes are given off.

The machine is well hooded, but this man was observed to place his head under the hood after pouring anilin oil into the mixture, thus getting considerable fumes from the inhaling. Two hours later he complained of feeling sick, headache developed, marked cyanosis, shortness of breath and general weakness. He had profuse perspiration and complained of intense headache. He was removed to the outer air and first aid treatment resulted in complete re-

covery. Marked muscular weakness resulted in an incapacity of one week.

CASE 8. A man, 35 years of age, employed as a general laborer in the compounding room in a rubber establishment, developed marked dermatitis of hands and face. His work consisted in handling the different ingredients that go to make up rubber tires, and had disobeyed orders relative to the wearing of gloves. This case occurred during July, a very hot, humid day.

CASE 9. A woman, 44 years of age, employed in dressing tan shoes in a shoe factory, developed a marked eruption of the arms, neck, and body. Investigation showed marked tremor of hands and speech, both wrists showing a dermatitis, also the dermatitis of the arms and neck. The preparation being used contained anilin dye. Although this woman wore rubber gloves, she frequently removed the same, and had a habit of rubbing the glove across the face, the site of the skin irritation.

CASE 10. A man, 47 years of age, employed as a kettle hand in a dye house, developed marked dermatitis of both hands from handling cloth wet with dyestuffs. Examination showed the dyestuffs to be fast black with anilin ingredients.

CASE 11. A man, 36 years of age, white, employed as a laborer in a dyestuff establishment, was overcome by anilin fumes while working over a vat containing meta-nitraniline, which was not covered. He remained until the close of the shift, and went home without assistance. Later in the night he became cyanotic, nauseated, convulsions and coma. First-aid treatment given, recovery resulting, with much loss of muscular power and marked nervous debility. He was not able to return to his former occupation.

INFANT MORTALITY: THEORY AND RESULTS.

BY D. M. LEWIS, M.D., NEW HAVEN, CONN.

THE fact that proportionate results based on the present-day educational theory are not as great as those that may be gained otherwise is a not unimportant matter for discussion at any time. Why this is so is not difficult to show.

It is theory that death certificates show that 25% die of diarrhea and enteritis, 15% from respiratory disease, 8% from communicable

diseases, 31% from congenital malformation and debility, while from all other causes not susceptible of much analysis, 21% die. Of the latter there is stated to be doubtless a small number of preventable deaths. There looms predominant the first and third percentages. It is then reasoned that the vast and unmeasured loss of infant life is due solely to individual and civic neglect, the factors of which are ignorance and poverty, bad housing, poor midwifery and obstetrics, dirt, poor milk and other allied conditions. On such principles antenatal care of mothers should produce stronger babies, and the direction of care of the first month of life especially should be devoted to keeping well babies well. Inasmuch as it is stated to be a fact that summer is the season when the greatest number of babies die and there is a greater amount of sickness among them at that time, the keeping of babies strong is solely through the relation of food, namely, milk. The problem then centers on milk station summer work, together with the year-round educational prenatal work of either civic workers or municipal nurses. Results expressed in terms of deaths per 1000 babies born are then available for comparison.

To one studying the subject as a medical problem, there are several fundamental errors which have evident need for elicitation. One that has never been brought out is the fallacy of expressing the sum of the results in terms of death per 1000 births only. It is stated that is is possible for, and the goal of every community should be, a rate under 50. Brookline, Mass., with a rate of 43, has an "honor rate"; Lynn, in the same State, one of 77; Paterson, New Jersey, one of 81, as also has New Haven. If now we know that for the year when these rates held (1917) there was a birth rate for these communities of 15, 21, 25 and 36 respectively, there is opened up a very tangible something. It becomes one of the fundamentals of ability to obtain results. New Haven, of the four communities, has the best record—not race suicide as expressed by Brookline, not a goal that should be striven for—for we have two and one-half the number of children born and less than twice the deaths. The same holds true to a lesser degree with the other communities.

A second error is found if we question whether there are more babies die during the summer. Whether the small community or

the large, the sum total of the deaths during the first six months not only may equal the latter six, but frequently are in excess; further, the same relation exists between the first quarter and the third. What makes any difference between these, and why the second quarter may be much greater than the fourth quarter, are pertinent to the subject later on.

A third error is the listing of percentages in terms of death certificates subject only to the office investigation. If we separate the deaths under age one week, we find that one-third more such die in the first half year: that during the third quarter least of all die; that the large monthly deaths are not proportionate to the total monthly births, but are proportionate to the general respiratory disease curve, month by month, in general. The remainder over age one week, for the first two and the last quarter show upwards of 75% dying from acute infections, predominantly respiratory, while the third quarter shows the predominant gastro-intestinal diagnoses. Further, if we examine the social conditions, not in the office but in the field, we find that the greater predominance of premature deaths are not a constant having poverty and general lack of attention. There are two facts which have a bearing as being possibilities: first, the only occasional, it is true, hospital diagnosis of acute infection, with secondly the increasing number of reported cases of placental demonstrated infections not previously suspected from the usual history and examination of the mother. Single isolated ones, involving the demonstration of pneumococcal septicemia of the premature have been found by the inquiring individual, not content with merely premature. If we study the approximately two-thirds available death certificates which show place of residence, in the deaths over one week and under one year, in terms of previous, prevailing and future illnesses in the family and their immediate friends, there is very tangible evidence that the predominance of the debility of the 31% and of the 21% of obscure causes can be properly placed. If one has had considerable experience with infants and knowing that even the average one has some power of resistance, will look for minor defects, or if that individual merely examines every child in the family where one has a minor complaint which keeps that one at home though not under medical attention, there will be

forced on the observer, monthly and yearly, that there is one very definite something to be seen. It is an amazing unappreciated evidence of minor grade respiratory recurring inflammation of nose and throat of these small individuals. With hypertrophied tonsils, subacute and chronic rhinitis, isolated cervical gland enlargement and not infrequent otitis media in infants of three weeks and over, even under three weeks, we have that definite something which both explains and may be explained. It explains the frequency of school period present-day deformities. It explains the frequency of later adult life. It explains the variation in regional rates and their exact variations of respiratory morbidity; the high pneumonia rates of the New England coast and the Lake regions as contrasted with the less variable climate of the interior cities. It is explained by the very real consideration of birth rates. The rates for mortality are measured by that population, as we have frequently shown, who are unappreciative of minor respiratory troubles, living in a climate which is more provocative of such troubles. To my knowledge there is on record but one confirmation of these demonstrable factors. The Tuberculosis League of Pittsburgh, taking a restricted eight city blocks, concentrated on prophylactic clinics and treatments for infants with slight ailments such as noses and ears with discharges. The work, continued over a period of one year, gave a 43 per thousand diminution in death rate, over the whole ward. Parenthetically, the "paternalistic methods" caused the abandonment of an intended fifteen-year experiment. A most unusual observation for the period was one made in this city in 1886 by the health officer, Dr. C. A. Lindsley. It was as follows: Of 42 deaths from infant diarrhea in July, 40 houses were implicated. Of the latter, 30 had office records that all but 2 had privy vaults. Of the 2 one had 34 residents, the other had 12. During August there were 32 deaths. Of the 28 premises inspected, 27 had privy vaults, while the remaining one had 15 families resident. His conclusion was "the most obvious and positive inference which these facts teach is that infant diarrhea is limited to those who are exposed to inhalations of human excrement collected in masses in the ground: that the larger proportion of the populace not so exposed are exempt from these intestinal disorders in a fatal form."

Transformed to present-day explanation of Hazen's theorem, this observation becomes definite human infection.

A high death rate of prematures must then be demonstrated from its higher seasonal curves proportionate to respiratory frequency not to be due to that factor directly or indirectly through the mother or examiner. High rates from that age up to that of one year must similarly be demonstrated not to be so due. And in reverse, there should be shown, as stated in our premise, that there are results to be obtained from such a standpoint in excess of the so-called standard.

What results demonstrate from sufficient time-period with accompanying facts that infections are the dominant problem? The statistics of Richmond, Va., have demonstrated for the past four years that infant welfare directed solely against diarrheas as infectious and communicable cut their previous rates under standard welfare work in half, with a corresponding lowering of infant mortality: their curves during that period were in terms of respiratory frequency, as whooping cough, etc. I have shown that a similar reduction has been held for this city for over ten years in terms of providing non-infected milk; that the yearly variations are those of respiratory frequency. I believe I am accurate in stating that no other city in the country has similarly cut in half immediately on adoption of a procedure, their rate. Further, it is demonstrable that all other cities that we have record of show the factor of respiratory frequency in their curves, which in itself then becomes a result, if not a proof. In a previous paper,¹ I showed the curves of the three largest cities in the State for a period of sixteen years. Taking the specific rates for 1917 for Hartford, Bridgeport and New Haven as 103, 90 and 81, respectively, we base comparison on the fact that all had a birth rate of 35 or over. Proportionate to the increased rate for diarrheal diseases under age 2, of total deaths under age 5, and of total communicable diseases, Hartford had a rate in excess over 1916. Specifically, Hartford had an epidemic of meningitis. Bridgeport had a decrease over 1916 proportionate to the decrease for all other rates mentioned. Bridgeport had no specific epidemic or frequency of respiratory disease. New Haven had a decrease over 1916 in excess of the decrease in the other rates. With a measles epidemic exacting more

lives than any epidemic since 1906, although there were three since that year, with the recognition that measles was a blessing in disguise for the making of nasal carriers of other diseases as well, a special drive was made against respiratory carriers. The result was not only decreased rates for total communicable diseases, total deaths under age 5, diarrheas under 2, as well as the excess of decrease for infant mortality, but the same was in opposition to the increased rates for all similar conditions during each of the three measles years, as well as the maximum compared one of half of 1918 we have for the three cities, respectively, rates of 108, 100 and 94. The birth rates for the period are all approximately 15. If we state that the total deaths under age 5 were 230, 231 and 204, and compare 1917 we shall find an increase for all three cities, but greatest for Bridgeport and New Haven. With a real epidemic of whooping cough in this city, with no unusual respiratory disease incidence stated to be so in either of the other two cities and only a moderate increase of pneumonias in all three cities over last year, the excessive increase of Bridgeport only over that of Hartford compared to last year and compared to the existing not proportionate increase of pneumonia, was not evidenced by their monthly reports. It was in evidence when the belated state reports were issued. New Haven reported in their monthly bulletins for the first five months, 23 deaths from whooping cough, where Bridgeport reported 13. The State reported for the two cities 25 and 32, respectively. No less certainly was the excess of rate in Bridgeport than in New Haven over Hartford due to respiratory disease, pneumonia and whooping cough. If now we take our neighboring metropolitan city we have their knowledge that for the first twenty-one weeks of 1918 there was a 5% increase over the previous year of deaths under age 1. Not being able to get their births, to show whether, with birth rates lower than last year, as is usual the country over, this is an increase of the mortality rate or one over deaths only, the material point is that during that period there was a weekly increase of measles and whooping cough with pneumonia over 1917 to explain the increase.

How, then, are results to be gotten. Standard methods today call for the educational lines, predominantly those of prenatal and of later care of the child in terms of feeding

Whether municipal or civic, their foundation comes from the basis of the social scientist. Gains that are made are not correlated with birth rates or with other than some one immediately previous bad year's record; increased rates are not as great as some one such year. Or an investigation is started in terms of the theorist. In a previous article,² I showed that excessive diarrheal disease in New York City last fall was due to whooping cough, according to their own statistics, as against the implication of milk which they had ordered investigated. Again this year, with the increase in infant mortality, that city ordered a milk investigation, although measles increase and continuance of whooping cough was clearly causal. It may be but a coincidence, but some weeks after a personal letter of protest to the department head, their bulletin of June 29 devoted two pages to the conservation of infant and child life from the standpoint of measles and whooping cough. Yet that admission, as I have shown, does not go far enough. The responsibility for the disease is left on the populace—not assumed by the board of health. In that it is the crux of the entire situation, I would again refer to a previous article.³ When you watch 75% of preventable deaths in children, it lies not in education of mothers, but by direct investigation that is medical of all minor as well as major illnesses, of such minor investigation of ordinary as well as extraordinary head colds that the latter as specifically infected do not contaminate the former innocuous ones; of recognizing all infections as communicable and finding such ahead of reported cases; that such investigation is that of all-time health policies, no matter how ancient as long as it is inspection of individuals primarily, and not premises, and that it is routine rather than following complaints. The trained nurse, as contrasted with the sanitary inspector, from a personal knowledge can obtain, without duplication of health activities, as at present, the hitherto unappreciated data of all factors. I may express it as I have to one such:—some one is responsible when the death certificate of a preventable death is turned in. From her card an investigation reveals whether it is primary with her or with those having charge of correcting the conditions which were directly the cause, and to whom it was referred through her. And so on through the list of preventives, until it may

reach, not one in the working force of the department, but an allied department, like that of charities, or possibly some civic association to whom it was referred. The active health officer has a check on every working individual of the department. Not the extreme of a death is the possibility—the daily or weekly illnesses constitute themselves such in advance. The work of one nurse working over a period of four months in the two worst districts with results, is an accurate guide to what may seem assertive. Practical experience shows it the simplicity of rationalized old public health. The isolated factor of complete birth registration is more than possible—it also is one of the functions and responsibilities of the health authorities.

Infantile mortality, then, should be and may be looked at from the standpoint of a part of true sanitary science; observations made can show the cause; experiments are made by nature and can be interpreted; unusual frequency can be foretold by its interdependence on all the factors of that science, and results may be obtained from application of the observations and experiments. If an observer records the statistics of two cities of Russia, stating that the one with a higher diarrheal infantile rate has a much higher development of infant welfare station work, we know that we shall find that that city has a much higher mortality rate for respiratory diseases. There is further confirmation when the writer states that for all Russia the seasonal differences are not as striking as might be expected, namely, 25% of infant deaths occurring during the winter, 28% during the spring, 28% during the summer, and 18% during the fall. Of equal confirmation is that 18% die during the first week, 47% from then until the sixth month, and 34% for the last half of the first year.⁴ We cannot agree with the social conclusion that "Poverty and Ignorance," in an accentuated form, and in particular, the ignorance of the principles of infant feeding caused the tremendous mortality. The logical medical conclusion was that the tremendous excess of respiratory diseases, with excess measles, diphtheria and scarlet fever, interdependent, are accountable for the tremendous infant mortality; that the city with better milk station had a right to have an excess over one that was inferior, because the former city had a proportionately greater amount of respiratory disease,

as evidenced by the various diseases mentioned and listed.

In sum: the results gained in infantile mortality are accurately stated only when coincident birth rates are considered; comparisons, to be accurate, should also be in terms of similarly prevailing frequency of infections, mainly respiratory primarily. Conversely, results in excess of those laid to public education may be obtained by medical realization of its dependency as a part of sanitary science; that the present-day educational work is not only working on the shorter end, but is, from its limited point of view, not coincidentally working for results in infantile diarrhea, total deaths of young children and total communicable diseases, as should be the case. To place infant mortality not only on a correct basis, but to place its responsibility correctly, means standardized responsibility of health departments as opposed to standardized methods; incidentally it also would mean the recall of advocated socialized medicine in terms of health insurance, now looked at by the same social theorists as the new public health.

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Selected Papers.

SOME SPECIAL PROBLEMS IN ABNORMAL ADOLESCENT PSYCHOLOGY.*

BY OLGA L. BRIDGMAN, PH.D., M.D., UNIVERSITY OF SAN FRANCISCO.

FIRST, a word as to the importance of the adolescent period in the development of abnormal mental states. It is generally agreed that during this period there may be noticed for the first time marked mental abnormalities. There are several reasons for this. First of all, adolescence is an active development period, and marks as well the appearance of new traits, such as the sex interests. It is a time of great physical and mental stress, and, hence, mild peculiarities tend to loom large, and in some cases, where the abnormality has been present only as a latent tendency, the additional strain imposes so great a burden that it

cannot be borne normally. Then adolescence has another importance. In poorer homes, especially those of the children likely to come before the Juvenile Court, this is the period where the relatively close supervision exercised by the public school over the child ceases, and the immature individual, usually unprepared, both economically and morally, faces the necessity of entering the industrial world, and acquires, at the same time, a freedom which he is not able to use wisely. This latter condition, added to the fact that the child is passing through a critical physical period, results in precipitating many troubles of a mental and moral kind. It may or may not be that adolescence is responsible for the appearance of many abnormal mental traits. Without attempting to settle this relationship, this brief discussion will merely concern itself with certain of the mental abnormalities which have been observed in adolescent persons.

I will attempt a rough classification of the main types of abnormal children which have come for mental examination, realizing, however, that a child seldom presents a clear picture of one type or another, and that, as a rule, very many important factors are at work to bring about any particular result.

1. First come the feeble-minded; that is, those individuals who from birth have been so defective mentally that they have never been able to compete with the normal fellows in a satisfactory way. This is the simplest group of all, and the diagnosis is never difficult. It may be considered an adolescent problem, because, in the case of the higher grade mental defects, the home and school protection usually prevent any great trouble until the time to leave school comes. Then come the difficulties. The child, unable to make normal progress, even in the protected school environment, finds himself face to face with a complex situation. In the case of the feeble-minded girl, she finds herself unable to earn enough by her work to support herself away from home. If still living at home, she finds she is her own master and, in the absence of adequate supervision, begins to spend her evenings on the street and in dance halls and other public places. Soon she makes the acquaintance of undesirable characters, and then, even in the absence of any vicious tendency, immorality often follows. She may have no strong sex impulses, but is

* Department of Pediatrics, University of California. From the *Archives of Pediatrics* for March, 1918.

not at all averse to immoral relations as payment for pleasures. Many a girl, when asked why she acted as she did, replies naïvely, "He was awful good to me." This, too, explains why girls so often refuse to testify against the men involved with them. They have no scruples against immorality, and actually regard the men as friends, and insist that they would not do anything to hurt them. The feeble-minded girl is immoral because she cannot understand the social argument against immorality. But there is a second type of feeble-minded girl, the girl with highly developed sex impulses. As a rule, such a girl as this is the aggressor, and not only has no wish to refrain from immorality, but seeks it actively. The feeble-minded boy is a less serious problem than the girl, unless he happens to be the over-sexed type. Immorality as a profitable trade is not open to him. His most useful offence is petty thievery, which is the inevitable result when the incompetent lad has the freedom of the streets and sees opportunities to get the things which he wants, but which he cannot obtain in a legitimate way.

II. Next come the border-line cases, children with ability less than average, with demonstrable mental defects, but with enough mental capacity to float in society, except when confronted with unusual or difficult situations. It is in respect to these children that the early environment has the greatest effect. Given intelligence of a low order, and super-impose on that a careful moral and industrial training, and there results an individual who may pass through his whole life in a normal way. But if the training is omitted and the child is called upon to face such a complex environment as is seen in San Francisco, or in any large city, with temptations everywhere and no background of good habit, there is easily developed an individual more dangerous to society and more difficult to control than is the feeble-minded person. And yet, though innate mental defect is at the bottom of the trouble, still it is almost impossible to convince the average person that we are dealing with the problem of mental irresponsibility. It is often these border-line cases who commit serious crimes, such as murder and the worst type of sex crimes.

III. Next comes the group of constitutional psychopaths, individuals so unstable as to

seem insane at times, and as to have the greatest difficulty in adapting themselves to normal social conditions. As adults, they often make up the agitators, the cranks and fanatics. In cases showing themselves in early life, it may be that a true psychosis is about to develop, but in many instances this will probably never take place. The constitutional psychopath often has impulses which he is utterly unable to control. Here we may find the kleptomaniac, the pyromaniac, and such impulsive types. For example, a report recently came from an institution of a lad who had set fire to many buildings, and was finally committed to a reformatory. The boy would build bonfires of paper and refuse in the middle of a room, often wait around, and later help to put out the fire. He himself stated that he just had to set fire to things; he didn't want to do any harm, but he wanted to see the fire burn. It is easy to see how persons with little power to control impulses, and afflicted at the same time with very strong impulses, can become offenders, and how under good conditions they will have great trouble in adapting themselves to the requirements of the community. It is easy to understand also why a person, who, under simple conditions, might have no difficulty in passing as normal, may develop dangerous traits under complex conditions, simply because of his inability to stand an unusual strain.

IV. Next comes a very interesting group, made up of children who are normal in most respects, but who have some special defect which makes ordinary progress impossible for them. First there is the child with special language difficulty, analogous to the aphasias which occur later in life as the result of brain injury or disease. He may be a normal child so far as his every-day conduct goes, but quite unable to read and write. Normal school progress is out of the question, and he usually remains indefinitely in the second or third grade, because of his one particular difficulty. Presently school becomes quite unbearable to him, and a perfectly justifiable truancy develops. Then there is the child with special difficulty in arithmetic. Again, there is the group of stammerers, children, usually neurotic, timid by nature, who suffer desperately under the ridicule which the normal child knows well how to use. As a rule, this last condition lends itself well to special train-

ing but sometimes no improvements can be made. Perhaps the child is so backward mentally that he cannot grasp the directions for controlling his trouble, and, on the other hand, he may have some organic disease which makes improvement virtually impossible. For example, congenital spastic paralytics have sometimes been treated, of course with no success; and not long ago two children, brother and sister, who were not profiting by the class work for stammerers in the public schools, were referred for a mental examination, and were found to have well developed cases of Friedreich's ataxia. It is this field of special difficulties which is tremendously important, and which deserves all the careful study that can be given.

V. Then comes a group of children who appear abnormal mentally, and who are clearly in poor physical condition. A markedly neurasthenic condition occurs in the presence of incipient pulmonary tuberculosis. The child is inattentive, is not capable of making sustained effort, fails in his school work, and has every appearance of being feeble-minded. This child, if given proper opportunities, will make remarkable progress in a mental way. Undernourishment, chronic infections, bad teeth, and similar troubles, affecting a child's physical condition, may have the same effect. These cases emphasize the close relationship existing between the physical and mental states, especially during a developmental period.

VI. The sixth group comprises those children with a special defect, but in the moral field. There is nearly always a demonstrable mental defect present, as well, in these cases, but the mental deficiency is not sufficient to account for the trouble which occurs. In a few cases there can be found no noticeable lack of intelligence. Judgment may be good and abstract ideas of right and wrong may be normal, but there is no feeling whatever of the wrongness of the given act and no aversion for it. This trait is, of course, more commonly seen in the case of defectives, where judgment itself is poor. For instance, one lad of dull mentality had been arrested on several occasions for stealing wood. When asked, during the course of the mental examination, what he most enjoyed doing, he replied, "I like to go and get wood for my mother." Here he was piously boasting of doing that very thing for

which he was held in custody, apparently having no true realization that his acts constituted an offence, in spite of the fact that he knew he had been arrested for them. Similarly, an older boy, of good intelligence, had deliberately embarked on a life of crime, but when arrested early in his career he said, "I am glad that I was arrested, because now I have learned that it isn't safe and so won't get into trouble again. If I had gotten away with that, I would have gone right on." Certainly there is a lack of a true moral sense when a lad can make such a naïve admission, while being detained for a serious offence.

VII. Finally, there is the group of young persons with true psychoses already developed. Occasionally there is found a case of dementia praecox with definite mental symptoms, showing often in the sex field, and hence leading to immoral conduct. A mild psychosis may also be associated with other conditions. For example, one girl, a ward of the Juvenile Court, with defective intelligence, became seriously immoral, and developed a bad case of gonorrhoea with double pyosalpinx. An operation was performed and both ovaries were removed. Naturally of an unstable, erratic temperament, this further strain had a profound mental effect, and she developed a melancholia. Suicide was attempted twice, but failed.

These classifications represent some of the types which appear for mental examination, but it is safe to say that very few of the children examined fall easily into one or another clearly defined class. Nearly always there are many factors involved, and some children do not allow themselves to be placed into any class, but present quite individual problems. No two cases of abnormality are exactly alike and no two individuals are alike, but a grouping into general types makes the consideration of the problem as a whole more simple. Following are a few case summaries, illustrating some of the more complex problems that come to us for solution:—

Case 1.—Boy, aged 21 years, arrested for robbing the mails. This boy had formerly been in the Preston School of Industry, and hence a mental examination was requested from the Juvenile Court. The early history is interesting. He was born in England. The father was a British Marine captain, and died when the boy was four years old of some form of paralysis. This was the only child, and after

the father's death the boy and the mother lived alone in their old home, very happily, according to the lad's memory. He appears to have been passionately fond of the mother. When he was 12 years old the mother married again, and the lad's happiness ceased. He hated his step-father for no reason which he could give, except that he "didn't want him in the house." The boy had finished his elementary school work, and wanted to leave home to go to a higher school. He won a scholarship for Harrow, but his step-father would not permit him to go, telling him that too much education was a waste of time and money. Thoroughly unhappy, the lad ran away from home, stowed away on a boat, and came to Canada. Here he went from place to place as opportunity offered, sometimes working on farms, finally going to Toronto, where he worked in a hotel as bell-hop. Here he saved a little money, and when about 18 years old started for the West. He was well grown and vigorous, but had much difficulty in finding work. He did pick and shovel work with railroad gangs, and finally joined one gang coming to the United States. He had little money, and walked the last 250 miles to the promised work. On arriving at his destination he found that sufficient labor had already appeared. He wandered on and on, finally coming to California. Work everywhere was scarce and food hard to get. Once he begged for food at a farmhouse, but it was refused, and he would not do it again. Eventually broke into a store and stole some articles which could be converted into cash and then into food. He was arrested and committed to Preston the following week. This was his first arrest. His record at Preston was excellent, and after 16 months he was paroled and found work in San Francisco. He worked in this one place for 14 months, or until his last arrest. The boy has very good general intelligence, and has a refined, gentle manner. Many of the facts of his wanderings have been verified, so probably most of his story can be taken for the truth. He has healthy interests, reads good books, spending much of his free time in the public library. Since beginning work in San Francisco he has lived in a cheap hotel, and has had almost no friends or even acquaintances. He states that he has been terribly lonely. When asked why he had stolen the letters, he said that he didn't get letters of his own, and had always been interested in the

things which people write to one another. Asked if he did not realize that it was dishonorable, and dangerous as well, he replied that he had never known the people, and did not feel as though he were prying into other people's affairs. He further added that he had taken hundreds of letters, and probably for this reason had never thought of it as being dangerous. There are several ways of looking at this boy's story. When arrested in San Francisco, things looked very black for him. He was guilty of a serious offence, and had a previous reformatory record, apparently an old, perhaps hardened, offender. But when studied more carefully the whole picture is changed. There is little question but that this lad may make a normal citizen, and there is even reason for some surprise that he has succeeded as well as he has, when all things are considered.

Case 2.—Girl, aged 19, brought to the detention home for stealing. Her mother believed her to be a kleptomaniac, and not responsible for her acts. The family seems to be normal: an older brother is a university student, and an older sister is married and appears very intelligent. The home is comfortable, and the supervision of this girl has been good. Her early physical and mental development was somewhat retarded, and she was very hard to teach as a child. The mother noticed at 3 years of age that she was not like her other children. At 5 or 6 years she began to steal whenever the opportunity presented itself. She stole anything which she could take away, regardless of its value or lack of value, and hid away large numbers of useful articles. She has always been very untruthful, and now invents elaborate stories of her family connections, telling of great wealth and of social prominence. Recently she has taken to stealing birds or stealing money with which to buy birds. These she cannot bring home, and so they are left with various friends. She has no compunctions for her acts. Morally she appears quite incapable of making normal judgments. She entered school at the age of 8 years, and has attended regularly ever since. She has never been promoted at the end of one year's stay in a grade, and is now in the eighth grade. Her intelligence is defective, but the defect is not great enough to account for all her abnormalities. She has a special moral defect which makes her

utterly irresponsible and incapable of leading a normal life.

Case 3.—Boy, aged 18 years, brought to the detention home by a group of men, among them his employer, who were interested in him and had recently discovered that he was indulging in perverted practices. At their request he was given a careful mental and physical examination. The family history is very significant. The parents were both native Americans. There are two older brothers and an older sister. The parents separated many years ago, because of the peculiar character of the mother. She was not sexually immoral, but had some very undesirable traits. She discussed obscene acts before the children, smoked and drank, and altogether behaved in an objectionable way, which was having a bad effect on the children. The mother is a pretty woman, refined in appearance, and not at all suggestive of the type described. After the parents' separation the two older boys lived with the father's people. Both these boys are abnormal; one is a sex pervert, and the other, who has a court record, is a pervert of the worst type. The patient is a typical sex invert, and talks freely of his traits, considering them inherited from his mother. He states that from the time he was a small child he has never derived pleasure from normal boyish activities. At 7 years of age he masqueraded in girl's clothes, and at the present time he dresses in ballet costumes and the like whenever he can find the opportunity. He associates with a group of similar characters, all of whom have adopted feminine names and who give parties and entertainments from time to time for the purpose of assuming feminine attire and trying to simulate feminine appearance. A careful mental examination brings out several very important facts. This boy has a high degree of general intelligence and good native ability along all lines. No intelligence defect of any sort is demonstrable. He is widely and accurately informed, both as to general information and as to school knowledge. His school work was discontinued at the age of 14 years, after he had completed the first year of his high school course. His interests, however, are very abnormal, and are quite in keeping with his character, as shown by his sex perversions. When at home he spends his time doing raffia work and making lace. He dislikes manual work of the rougher sort, and only did what was required of him in

school. He has never attended a gymnasium, and objects to athletic games on the grounds that they are "brutal." His voice is high-pitched, and somewhat tremulous, and he has many feminine mannerisms, suggestive of attempted coyness. He dislikes the society of women, and has no respect for the men of his type, saying that he prefers big, vigorous men, but that he is compelled to associate with weaklings because other men do not seem to like him.

This type of individual is not very rare; several have been known to the Juvenile Court; but in no other case has there been so definite a history in regard to other members of the family. There is probably little that can be done to help this boy. He is unfortunate and an outcast, except in the group which he himself cannot respect. An enforced change in his behaviour, in the direction of more masculine behaviour, would probably make him even more unhappy than he now is. Such an individual as this is a danger only in so far as he associates with other and younger boys, teaching them his perverted habits. It is probable that many perverts are such, not because of an inherent tendency, but purely as the result of suggestion and habit, and this boy, if so inclined, could develop from younger normal boys a whole circle of perverts. Thus far he has shown no tendency in this direction, but it can never be certain that he will not do so.

Last of all, I will give the summary of a case of special language difficulty in a lad who is mentally unstable, possibly an epileptic, but who has good general intelligence, except for this one great deficiency.

Case 4.—Boy, aged 10 years. Was brought to the clinic for a mental examination at the request of his teacher because it seemed impossible for him to learn to read, even with special teaching. The family history is somewhat important here. The parents are separated, the father having been "peculiar" mentally. The mother thought him unsound. There are three other children, two of them normal, but the other with a marked stammer. This boy was apparently normal at birth, and had normal early development. He walked at 15 months, and began to talk at about the same time. When a little more than a year old he fell from a chair, and a short time later fell down a flight of stairs. After this last fall he was stuporous for a time, the doctor in atten-

dance saying he probably had meningitis. Since then he has been restless and easily excited, is a sleep-walker, had night terrors, and has minor attacks of mental confusion and excitability, which have been diagnosed as epileptic equivalents. He entered school at 6 years, but has reached only the second grade, because of his inability to learn to read. When examined by the Binet Scale he succeeded in passing all of the eight-year tests, four of the nine-year tests, three of the ten-year, and three of the eleven-year tests, this giving him a mental age of ten years, in spite of his failure in all tests requiring the use of reading or writing. He can read and write numbers, even of the higher denominations, as 3,580 and 1,235. He can read all the letters of the alphabet and write them from dictation. He spells out all words which he is asked to read, but he cannot read them as whole words. This is true of such words as "boy," "girl," "dog," "on," "at," "the." Only one word was found in the primer which he was able to read, and that word was "eat." When asked to write "papa" he wrote "payaen," for "house" he wrote "have." When asked to write "pencil" he requested that it be spelled for him. He then wrote the letters correctly from memory, but when a few moments later he was asked to read the word he had just written he read "quiet." He fails to draw two simple designs from memory, but there is nothing remarkable about this failure. The Sequin form board he handles rapidly and accurately, and has no marked difficulty with two geometrical puzzles. Simple arithmetical problems he solves readily, and in general, except for his one difficulty, he has fully average ability for a boy of his age.

Because of the history of a fall in infancy, followed by stupor, an x-ray examination was made of his head, and some evidence was discovered of a thickening of the skull in the left temporoparietal region, possibly resulting from a fracture. The boy's general physical condition is good, and his special senses are normal. He is restless and unstable, but ambitious to learn and anxious to make progress in school. His condition is somewhat analogous to cases described in adults, where, as the result of brain injury, the ability to read has been lost.

Book Reviews.

Notes on Galvanism and Faradism. By E. M. MAGILL. New York: Paul B. Hoeber. 1916.

This volume deals with the theoretical aspect of medical electricity. It is written as an introduction to the subject, and is intended mainly for the use of masseuses preparing for examinations in medical electricity. The book is divided into three parts, dealing with galvanism, faradism and currents from the main. Part one includes the following subjects: static or frictional electricity, static electricity in medical work, current electricity, chemical action as a producer of potential difference, galvanic cells, the relationship between voltage, resistance and current, the galvanic medical battery, different effects of anode and cathode, the uses of galvanism, ionic medication, the theory of ionization, solutions for ionic medication, electrolytic burns, and the effect of galvanic current upon muscles. Part two, dealing with faradism, discusses: induction, the faradic battery, methods of application and therapeutic uses of faradism, and combined currents—galvano-faradisation. Part three, currents from the main, includes a discussion of the dynamo, the utilization of the direct current, the dangers of earth currents, the alternating current, electric baths, and radiant heat and light.

Technic of the Carrel Method. By J. DUMAS and ANNE CARREL. New York: Paul B. Hoeber. 1917.

This book is a description of Dr. Carrel's method for the treatment of war wounds, and is one of the most important contributions which have been made to surgical technic since the beginning of the war. It is written primarily for nurses, for the success of the treatment depends upon the intelligent coöperation of nurses and assistants as well as upon the skill of the surgeon. A clear account is given of the technic employed and an accurate description of the apparatus used in carrying it out is provided. The materials used in the dressings are described: the rubber drainage tubes, tampons and compresses of gauze, cotton pads, sterile vaseline compresses, and various articles to keep the dressings in place. The preliminary microscopical examination and the irrigation procedure are explained. The appendices deal with the preparation of Dakin's solution and the microscopical examination of war wounds by the Carrel method.

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FURTHER DEVELOPMENTS IN THE PROGRESS OF THE INFLUENZA EPI- DEMIC.

THE epidemic of influenza-pneumonia, which has prevailed in Boston and surrounding districts for over two weeks, is still maintaining unprecedented strength. From Washington come reports of its further spread all over the country, as it has appeared in 43 of our states and in practically all the army cantonments, thought it is not epidemic in all sections.

Among the drastic measures adopted by municipal and civil authorities in efforts to stamp out the epidemic, the following steps have been taken:

Boston Emergency Health Committee extends ban on all public gatherings, including theatres and moving picture houses, to 11.59 P.M. October 19.

Boston School Board orders public schools closed until October 21.

Boston Health Commissioner orders closing of barrooms, bowling alleys, pool and billiard and auction rooms and soda fountains, beginning 12.01 a.m. October 6.

Mayor Peters urges closing of Boston churches of every denomination Sunday.

Governor McCall and Henry B. Endicott, chairman of the State Emergency Public Health Committee, jointly appeal to church authorities throughout the State to follow Boston's example.

Still further drastic measures were taken recently by the municipal authorities in their fight to stamp out the influenza-pneumonia plague when Dr. William C. Woodward, commissioner of health, signed an order regulating the hours of business of retail dry goods, department, specialty, clothing and furniture stores and shops in the city of Boston.

The order, which went into effect October 8, directs that retail stores other than drug stores or places where food is sold, shall not open before 10 a.m., and shall not close before 6.15 p.m.

All events scheduled to take place between October 1 and October 12 have been cancelled. Among these are the Brockton Fair, the Horse Show at Readville, the celebrations of Columbus Day, and the various meetings for the Liberty Loan Drive.

In Boston the death rate, beginning October 1, may be seen from the following table:

	INFLUENZA	PNEUMONIA
Tuesday	152	50
Wednesday	135	40
Thursday	166	25
Friday	154	27
Saturday	117	32
Sunday	153	37
Monday	146	24

Outside of Boston reports from 80 cities and towns in Massachusetts show that new cases are still on the increase. Fall River, 624; Lowell, 545; Clinton, 520; Springfield, 439; Fitchburg, 402; Arlington, 304; Wellesley, 242; Peabody, 210; Framingham, 207; Athol, 207; Danvers, 194; Middleboro, 175; Milford, 140; Grafton, 110; Lawrence, 107.

Dr. D. W. Carey of the State Health Department reports that industrial centers are seriously affected, Lowell, Fall River, New Bedford and Lawrence representing the most difficult problems.

State Commissioner of Health Dr. Eugene R. Kelley has given these statistics for Massachusetts alone:

One hundred and fifty thousand to 175,000 persons affected.

Five thousand persons have died.

Six thousand doctors fighting the epidemic
Double that number nurses engaged.

Four hundred and fifty thousand "warning" bulletins circulated.

Five hundred thousand dollars appropriated to stamp out the disease.

Four hundred and fifty persons dying in the State every day.

In the army cantonments of the entire country there have been reported to Oct. 7 167,000 cases of influenza, 17,102 cases of pneumonia, with 4,910 deaths from these combined diseases.

Camp Dix, New Jersey, reports the highest death rate in any one day, where 64 soldiers died on Tuesday, October 1. This camp, next to Camp Devens, has shown a greater severity in these diseases.

Camp Devens shows a decrease in the number of new cases and also a gratifying decrease in the number of deaths. The total influenza cases reported from this camp is 12,707, with 1,860 cases of pneumonia and 593 deaths.

Dr. John M. Edgar of the First Naval District reports more encouraging conditions. The total number of cases reported in this district is 3,594, with 145 deaths.

Secretary of Navy Daniels announces intention to abandon Commonwealth Pier as receiving ship.

Quincy health officials are now satisfied that the epidemic is on the wane in that locality.

On October 7 the number of patients at the Fore River Hospital was reduced to 103 and there were 64 empty beds and no new cases were reported.

In response to Governor McCall's appeal for outside aid in combating the disease, doctors and nurses have come from many quarters, notably Washington, D. C., Maryland and the Middle West.

Captain Draper of the United States Public Health Service recently reported that 90 physicians of the Volunteer Medical Service Corps, all in the pay of the Federal Government, are now assigned to Massachusetts cities fighting the epidemic. About 50 more doctors assigned to this State by the Government have yet to arrive.

The great need for nurses' aids to assist the

regular physicians and trained nurses in their tasks is voiced in the appeals of Henry B. Endicott, chairman of the Emergency Health Committee, and of Dr. W. C. Woodward, as given below:

Henry B. Endicott again appeals for more nurses and public school teachers as aids.

Dr. Woodward, Boston Health Commissioner, issued recently the following appeal:

"Nurses' aids are the prime need of the minute. With the help of an aid a trained nurse can see two cases, where without the aid she can see but one. For night service a trained nurse can supervise the work of 10 aids and care for 10 patients, while without an aid she can give her attention to only a single case.

"Notwithstanding the many appeals that have been made, the number of nurses' aids is still far short of the needs of the situation.

"The circumstances offer a real opportunity for substantial service by churches and by fraternal and other organizations."

The Emergency Public Health Committee has accepted the offer of Cardinal O'Connell, whereby the buildings of the St. John's Seminary are to be used as a temporary hospital for the care of influenza patients. With this offer the Cardinal also announced the readiness of 112 Catholic Sisters of the archdiocese to do district nursing. Mr. Endicott, on behalf of the committee, accepted both offers, and fifty of the Sisters have reported at the State House for immediate service. Seventeen convalescent patients have been sent to the Seminary.

Many colleges report new cases of influenza and pneumonia, among their students. Smith College has suspended all class work and other student activities.

"The spread of influenza in the western part of the State is not yet checked," President Neilson said in a statement recently, "and the authorities at Smith College in consultation with the State Board of Health have decided to suspend college exercises for the present. Students in the immediate vicinity will be permitted to return to their homes, but it is not considered desirable that those from a distance should travel at present. College dormitories will remain open and the student body in general will be disbanded."

One of the new movements in connection

with the work has been the establishment of a hospital clearing house, which will handle all information concerning the epidemic. Through this bureau calls for ambulances, physicians and nurses can be coördinated and other requests referred to the proper departments.

Under the leadership of the Women's Committee on Food Conservation of the Public Safety Committee, emergency canteens for influenza sufferers have been established at various stations in the city. Hot soups, cereals, milk and eggs may be obtained.

BOSTON HEALTH DEPARTMENT.

A RECENT issue of the Bulletin of the Health Department of the city of Boston contains mention of the change in Health Commissioners, and gives a brief summary of the career of Dr. William C. Woodward, who has succeeded Dr. F. X. Mahoney:

"Doctor Woodward was born in Washington, D. C., December 11, 1867. He was graduated from the Washington High School in 1885, and from the University of Georgetown, with honors, as a Doctor of Medicine in 1889; from the same university as Master of Laws, and again as honor man, in 1900; and during 1889-90 took a post-graduate course in medicine at the University of Pennsylvania.

"He was superintendent of the Washington Emergency Hospital in 1891; physician to the poor under the Health Officer of the District of Columbia in 1892; coroner, July, 1893, to August 1, 1894, when he assumed charge of the Health Department. He has been active in health matters, and has served as president of the American Public Health Association, also of the Conference of State and Provincial Boards of Health of North America, and of the American Association for the Study of the Prevention of Infant Mortality. He is a director of the American Society for the Control of Cancer; honorary member of the American Veterinary Association, and of the International Association of Dairy and Milk Inspectors. He is a fellow of the American Medical Association; member of the General Medical Board of the Council of National Defense; the National Commission on Milk Standards and the National Tuberculosis Association.

"He is now president of the District of Columbia Society of Medical Jurisprudence and vice-president of the Society for Social Hygiene. He holds the chair of state medicine in the Medical Department of the University of Georgetown and the chairs of medical jurisprudence in the Law Department of the same university, in the Medical Department of the

George Washington University and the Howard University."

The Bulletin contains, also, an article on diphtheria. Although the total annual number of cases now occurring in Boston is less than a decade ago, in recent years progress toward further permanent reduction in the occurrence of this disease has not been satisfactory. The diphtheria curve corresponds in its general tendency to the curves of other contact diseases and with the prevalence of catarrhal conditions generally. By means of the Schick test, it may be determined within a period of four or five days whether or not an individual possesses an immunity to diphtheria. In case of doubt, immunity may be obtained by the administration of antitoxin. It has been found in Boston that unrecognized cases of diphtheria, either pharyngeal or nasal, are the most important factors in the spread of the disease. It is of utmost importance for physicians to detect at this time cases of diphtheria or of diphtheria carriers. The Department of Health is organized to furnish promptly laboratory reports of swab cultures from throats and noses in whatever number such reports may be requested; it will also supply personal diagnostic aid in any case in which such assistance may seem advisable. Furthermore, it investigates every positive diphtheria culture with a view to discovering and eliminating the source of infection. It is urged that physicians examine both the nose and throat in every case of illness in a child whom a physician may be called upon to attend, and to forward to the department swab cultures, not only in cases showing suspicious clinical symptoms in the throat and nose, but in all cases presenting marked pharyngeal inflammation or the occlusion of a nostril. Especially in cases clinically suspicious, it is urged that examinations be secured of all other members of the family.

In regard to smallpox and typhoid fever, it has been recommended that persons in establishments manufacturing materials for the Federal Government be vaccinated, for these communicable diseases must be prevented in order to maintain good health and labor efficiency. The Public Health Service will vaccinate, free of cost, any persons applying at the service stations.

The report of the Baby Hygiene Association shows that this department has cared for 4711 babies during the first six months of 1918

This represents an increase of 23% over last year's figures. Three new stations have been opened—in Jamaica Plain, Upham's Corner, and East Boston.

DOCTORS AND THE LIBERTY LOAN.

It should not be necessary to urge upon physicians the importance of their purchasing Liberty Bonds to the limit. To do so is not merely a matter of patriotic duty and of self-preservation, but also a sound financial investment. We are not asked to give money to the Government, but to lend it at good interest. Doctors are proverbially poor investors, and the Liberty Loan affords us opportunity to make our savings safe from speculation as well as from the common enemy. Shylock wanted justice and his bond, but we may be sure there will be no justice in the world for us or for any man unless it be secured by our bonds as well as by the flesh and blood of our fighting brothers. Present appearances suggest that the war may be soon ended. The Fourth Liberty Loan may be the last to which we shall be privileged to subscribe, and this possibility alone is reason for carrying it to overwhelming success.

SPECIAL PRECAUTIONS AGAINST SPANISH INFLUENZA.

REPORTS from Europe during the past few months stated that there had been extensive epidemic prevalence of a disease resembling influenza. Many thousands of cases occurred in Spain (attacking nearly one-third of the population), Germany and England. On this side of the water, Cuba was visited, during June last, by a similar epidemic, which was stated to have affected one-quarter of the population of Havana, but not a single death resulted. In Spain, however, about 700 deaths are said to have been caused by the outbreak.

As, apart from the European epidemic, it is very evident that local outbreaks of what has been called "Spanish influenza" have occurred in several military posts in this country, and as a number of ships reaching our ports have had numerous cases among the passengers, this malady has become of greater importance in local health work.

While, so far, no definite organism has been identified with the cases seen, either abroad or here, the Department of Health has, as a mat-

ter of precaution, established special procedures to meet the situation. At a meeting of the Board of Health, held on September 17, 1918, influenza was made a reportable disease (that is, a disease of which all cases seen by physicians or cared for in institutions, must be reported to the Department of Health) as well as pneumonia, both broncho and lobar, since fatal cases of influenza are likely to be classed with the lung inflammation causing the serious symptoms.

The Department of Health is keeping all cases reported to it and supposed to be "Spanish Influenza" under observation, in order to determine whether secondary (contact) cases arise, as well as to study the disease.

In the European reports of the present epidemic it is stated that the influenza (Pfeiffer's) bacillus has been rarely found. Various other organisms have been named, but many reports mention a "grampositive coccus," apparently differing from the micrococci, commonly associated with catarrhal lesions. This pleomorphic "coccus" has been described in British, French, German, and Spanish literature, and seems the most promising, bacteriologically, of the organisms found. The investigations so far made by the Research Laboratory of the Department of Health have given the same results as regards the finding of the above-mentioned pleomorphic "coccus" in the sputum. Swabblings from the nasopharynx of cases in the Department's hospitals have, however, shown the presence of the influenza bacillus in a much greater percentage of the cases than previously, when the sputum alone was examined. Blood cultures, taken during the height of an attack, in a number of cases, have been uniformly negative.

A comparison of the present world prevalence of this "Spanish influenza" with the pandemic of 1889-92 shows that the clinical course of the prevailing malady is very similar to or identical with that of the previous outbreak. The findings of bacteriologists during the former epidemic were of the same varied character as has been reported in the European literature this year. Pfeiffer's bacillus was discovered in 1892, at the end of the last previous epidemic, and had not been described as associated with the outbreaks.

Symptoms of an Attack.—An attack of "Spanish influenza" is characterized by a sud-

den onset with chilliness, fever, general aching of joints and head; a varying amount of prostration; catarrh of conjunctival, nasal and bronchial mucous membranes. It usually runs its course in about three days, without serious results. However, in a certain percentage of cases the attack, as described, is followed, commonly on the third or fourth day, by pneumonia, and a patient so afflicted, may die within a few days.

Precautions to be Observed.—In the first place, as the malady is, of course, spread by discharges from mouth and nose—as in expectorating, coughing, or sneezing—no one should expectorate or sneeze in a public place, except into a handkerchief. All handkerchiefs used by persons suffering from influenza-like attacks, or in fact from any “cold,” should be regarded as the possible source of influenza, as well as various other infectious diseases, and they should be kept separate from other articles, as in a bag or covered receptacle, until disinfected by boiling. Necessary expectoration in the house should be into special receptacles containing a disinfectant or into a toilet. Persons with a “cold” should avoid talking close to another’s face, since influenza and other germs are commonly conveyed in the spray sometimes thrown about from the mouth. Of course, common cups, towels, pencils and other objects which are likely to convey germs from one mouth to another are to be guarded against.

Every one showing indications of a severe influenza-like attack should go home, and preferably to bed, as in this way they will conserve the strength so necessary to avoid the pneumonia which may follow in such cases. As pneumonia frequently has developed suddenly in cases apparently recovering from influenza, it is advised that all convalescents from the latter remain in bed for a week or ten days, until the danger is over.

As the better the general health the more resistant a person is to infectious diseases, including “Spanish influenza,” everything which will improve this should be favored, and all debilitating influences, such as overwork, insufficient sleep, chilling, undernourishment, carefully avoided.

VOLUNTEER MEDICAL SERVICE CORPS.

THE Council of National Defense authorizes the following statement relative to classifica-

tion in the Volunteer Medical Service Corps:

Interest among the members of the medical profession as to how their services are to be used in the Volunteer Medical Service Corps, once they have been enrolled and have put on the badge which indicates their willingness to serve and readiness to respond to a request from the Surgeons General of the Army, Navy or Public Health Service, or from the Provost Marshal General or from the General Medical Board of the Council of National Defense, has led to the announcement by the Central Governing Board of the basic system of classification for the organization. The lines on which the classification is made were determined by the Committee on Classification of the Central Governing Board, whose report was adopted. This Classification Committee has on it representatives of the Army, Navy, Public Health Service, Council of National Defense, American Red Cross, Hospitals, Colleges, Civilian Doctors, War Industries.

A summary of these classes follows:

Class I.—These will be the physicians first recommended by the Central Governing Board to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service. They include physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and who have not more than one dependent in addition to self; or who have an income or whose dependents have an income sufficient for the support of dependents other than that derived from the practice of their profession.

There are several exceptions provided for because of evident essential needs. Whether a physician’s services are essential to his community will be established by the Central Governing Board on recommendation of representatives of the Board appointed by it to make a survey of local conditions. Whether a physician is essential to an institution with which he may be connected will be established after conference between representatives of the Central Governing Board and representatives appointed by governing bodies of the institutions concerned. Similarly, the question of whether a doctor is essential to a health department will be established by conference between the Central Governing Board and the head of that health department. The question whether a teacher in a medical school is essential to that

position will be established by the Central Governing Board and representatives of the institution. Conference between the board and accredited representatives of industries concerned will determine whether doctors employed as industrial physicians are essential in those positions. A physician essential on his local or medical advisory board will not be disturbed.

Class II.—In Class II are physicians under 55 years of age who are without an obvious physical disability which is disqualifying, and who have not more than three dependents in addition to self. These will be recommended by the Central Governing Board, when the need exists, to apply for commissions.

Exceptions in Class II. are the same as in Class I.

Class III.—These are physicians under 55 years of age who are without an obvious physical disability which is disqualifying, but who have more than three dependents in addition to self; and they are the physicians included among the exceptions from Classes I. and II., namely those essential to communities, institutions, health departments, medical schools or industries. They will be recommended by the Central Governing Board to apply for commissions when the emergency is so great as to demand their services.

Class IV.—In Class IV. are the physicians who are ineligible for commissions in the Medical Reserve Corps of the Army, or Reserve Force of the Navy, but who are available for all other services. The physicians in this class include those over 55, those having an obvious physical disability which is disqualifying, and those rejected for all government services because of physical disability.

Physicians not professionally eligible for the Medical Reserve Corps of the Army or for the Reserve Force of the Navy, or for appointment in the Public Health Service, will be recorded but not admitted to the Volunteer Medical Service Corps.

Applications for enrollment in the Volunteer Medical Service Corps continue to come in from physicians from all over the country and by every mail to the headquarters at the Council of National Defense Building. These are being classified as rapidly as possible. Representative physicians from various parts of the country are assisting in the work incident to the classification.

State Executive Committees, enlarged to handle the work of the Volunteer Medical Service Corps, are perfecting the organizations in their states, and county representatives have been appointed in practically every county in the country. Group meetings are being held in many of the states, at which the State Executive Committees and county representatives are being addressed by members of the Central Governing Board of the Volunteer Medical Service Corps.

JOINT RED CROSS TUBERCULOSIS CAMPAIGN.

In order to finance the tuberculosis work in the country, the Red Cross and the National Tuberculosis Association have planned to join forces in the raising of money. Both associations will put their efforts into making a success of the campaign for Red Cross membership, to be known as the Christmas Roll Call. It is hoped that by this means the tuberculosis agencies may secure an income greater than was obtained last year. The sale of Red Cross Seals will be abandoned this year, although the Seal will be used as a distinctive feature of the Red Cross Christmas membership campaign. Each new member will receive a special packet containing educational literature on tuberculosis, ten Red Cross Seals, and information that will indicate to each of the expected millions of members of the Red Cross that he or she has a distinctive part in the tuberculosis campaign.

The Red Cross will bear the expenses of the campaign, including the cost of distribution of printed matter of various kinds. Anti-tuberculosis societies will coöperate by offering the assistance of their office staffs and other machinery for making the campaign a success. Extra local expenses not authorized in advance by the Red Cross will be paid by local tuberculosis societies.

Because of its own constitutional limitations, the American Red Cross cannot use any part of its membership funds for other than its own work, but in order that the interests of the anti-tuberculosis campaign throughout the United States may be insured against loss and may be safeguarded for the future, the War Council has appropriated to the anti-tuberculosis campaign of this country a sum amounting to \$2,500,000. The National Tuberculosis

Association has been designated as the agency responsible for the distribution of this fund.

The Executive Committee of the National Association has arranged to grant to each State as a minimum an amount equal to the gross sale of Christmas Seals for 1917. The distribution of the sum remaining after the allotment of this amount is to be made on a basis to be determined by the Executive Committee of the National Association. In accordance with the wishes of the American Red Cross and for the protection of the entire anti-tuberculosis movement, the National Association will require a budget to be submitted in advance of an appropriation for 1919 work and also an accurate detailed accounting of all money appropriated.

MEDICAL NOTES.

CHOLERA OUTBREAK.—There are more than 20,000 cases of cholera in Petrograd according to the *Fremden-blatt* of Hamburg. This reports that up to the beginning of August 1,100 deaths had occurred. The authorities, it declares, are helpless and the disease spreads unchecked.

Berlin has also reported sixteen fatal cases of cholera out of a total of seventeen; and several cases have been discovered in Vienna.

TYPHUS AMONG 50,000 REFUGEES.—More than 50,000 refugees from Turkey have been stricken with typhus in the island of Mytilene, according to a cablegram received by George Russos, Greek minister at Washington, and forwarded to the relief committee for Greeks in Asia Minor.

APPOINTMENT OF DR. GLIDDEN.—Dr. Edson W. Glidden, 2nd., has been appointed Assistant Medical Director of the War Risk Insurance Bureau, Medical Department, in charge of the Tuberculosis Department. This will be of interest to those who realize the large number of tuberculosis ex-soldiers and sailors who are being cared for by this Bureau. Dr. Glidden was for several years assistant superintendent of the Lakeville Tuberculosis Sanatorium, Middleboro, Mass., and has also been associated with Dr. David R. Lyman of the Gaylord Farm, Wallingford, Conn.

THE CHAIR OF SURGERY AT ZURICH.—Professor P. Clairmont, of Vienna, is to succeed Pro-

fessor F. Sauerbruch as professor of surgery and director of the Surgical Clinic at Zurich.

WAR NOTES.

MEDICAL OFFICERS COMMISSIONED.—The following appointments of Massachusetts men in the Medical Corps of the U. S. A. have been made:

Captain.—Dr. D. H. Luce, Canton; Dr. F. Everett, Springfield; Dr. W. Goodell, Springfield; Dr. H. J. Howard, Malden; Dr. F. R. Abbe, Boston; Dr. A. C. Eastman, Springfield; Dr. H. C. Kirby, New Bedford; Dr. F. J. Sexton, Brockton; Dr. Winsor M. Tyler, Lexington; Dr. James J. Walsh, Lexington; Dr. R. J. Ward, Worcester; Dr. G. A. Pierce, Tewksbury; Dr. J. L. Bacon, Southboro; Dr. J. M. Kelly, Dorchester; Dr. Thomas Paul Jones, Roxbury; Dr. B. T. Burley, Worcester; Dr. T. E. Cavanaugh, Holyoke; Dr. E. J. Dailey, Somerville; Dr. W. L. Hearn, Lynn; Dr. G. MacC. Mason, Boston; Dr. E. J. Sweeney, Springfield; Dr. J. P. Treanor, Dorchester; Dr. R. F. Sheldon, Boston; Dr. H. W. Trask, West Boylston; Dr. R. H. S. Young, Brookline; Dr. Frederick A. Bardwell, Boston; Dr. Frederick T. Clark, Westfield; Dr. Frank R. Jenks, Pawtucket, R. I.; Dr. Thomas E. Caulfield, Woburn; Dr. Everett V. Hardwick, Dorchester; Dr. Wm. H. McMann, Boston; Dr. J. H. Laurence, Brockton; Dr. F. W. Gay, Malden.

First Lieutenant.—Dr. J. H. Burkhead, Middleboro; Dr. H. H. Flagg, Charlestown; Dr. W. E. Buck, Wilmington; Dr. T. J. Cahill, Cambridge; Dr. S. E. Ryan, Springfield; Dr. Ernest M. Clark, Ashburnham; Dr. Edward R. Gookin, Dorchester; Dr. Orlando S. Mayhew, Vineyard Haven; Dr. Ernest W. Small, Belmont; Dr. Charles F. Traynor, Biddeford, Me.; Dr. T. B. Delaney, Lowell; Dr. P. A. Devaney, Waverley; Dr. H. B. Dunham, Brockton; Dr. E. D. Hartnett, East Boston; Dr. F. T. Henry, Salem; Dr. John Joseph Kenney, Providence; Dr. T. R. Donovan, Fitchburg; Dr. L. Lazarus, Worcester; Dr. E. R. Leib, Worcester; Dr. E. J. Grainger, East Boston; Dr. W. W. Walker, Boston; Dr. E. A. Barrows, Plymouth; Dr. J. H. Devenny, Dorchester; Dr. D. F. Downing, Westboro; Dr. H. H. Bard, Pittsfield; Dr. W. L. Tucker, Hinsdale; Dr. J. F. Ahern, Dorchester; Dr. W. B. Bartlett, Concord; Dr. E. H. Judd, Springfield; Dr. C. G. Wiles, Brockton; Dr. John M. Murphy, Brockton.

WAR RELIEF FUNDS.—On October 7th, the totals of the principal New England War Relief Funds reached the following amounts:

Belgian Fund	\$705,892.18
French Orphanage Fund	405,814.42
Armenian-Syrian Fund	312,828.02
Italian Fund	215,756.85

REJECTIONS OF DRAFTED MEN.—Rejections of drafted men at the military cantonments running at times as high as 34%, have caused Major Roger Wolcott to notify all local and district boards of the state, urging them to be more rigid in the matter of physical examinations.

Camp Devens has rejected 12¾ per cent. as physically unfit to become soldiers. Included in the number rejected were some of the obvious cases of unfitness for service. One of the men had a difference of 3½ inches in the length of his legs. Another had fractures of the skull and back. Other cases were of club feet, contracted fingers, scoliosis, double hernia, claw toes, defective vision and teeth.

Members of the Medical Advisory Boards are performing service of the highest character to their country, but such serious laxity in service is a great hindrance to the efficiency of the National Army.

DEMANDS ON RED CROSS INCREASE.—The widening scope of the American army activities in France is reflected in the increased demands being made on the American Red Cross as shown in a report lately received by the war council.

In August, Red Cross workers received and answered 10,000 letters from relatives in the United States seeking information about men in the fighting ranks. Many letters were also written for the soldiers to their families.

Seven new hospital recreation huts were established during the month, making a total of 17 now maintained by the Red Cross in France. The organization is now operating 72 dispensaries in cities and towns near the front for the benefit of the civil population. Many of these are short of physicians. In August, these dispensaries treated 34,250 persons, including 25,000 children. Red Cross educational exhibits to combat infant mortality and tuberculosis were attended by 380,000 persons during the month.

500 BAY STATE LIMITED SERVICE MEN CALLED.—Provost Marshal General Crowder has made an induction call for 500 Massachusetts white men for limited or special military service. They were entrained during the five-day period beginning September 30 for Fort Slocum, New York. The allotment provides for an average of four men, though some of the larger divisions are called upon for five or six men.

Membership in the so-called Volunteer Medical Service Corps does not create military status, and does not affect the status of registrants before the Selective Service law. Provost Marshal General Crowder adds:

“Resignations of medical members of selective service boards, based upon membership in the Volunteer Medical Service Corps, will not be accepted.”

BRIGHAM HOSPITAL TAKEN BY THE ARMY.—The Robert B. Brigham Hospital, for incurables, on Parker Hill, Roxbury, has been taken for army purposes. This hospital, together with the Elks' Reconstruction Hospital, being erected on the grounds, will be known as the United States General Hospital, No. 10. Some of the patients have been transferred, and the remainder of the one hundred and fifty cases will be sent to homes or other hospitals. A few patients will have to be sent to Tewksbury or other public institutions, although the trustees hope to provide for their care in other hospitals. This is one of the largest hospitals in this part of the country, and has ample provision and excellent equipment for about three hundred patients.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Oct. 5, 1918, the number of deaths reported was 1476, against 185 last year, with a rate of 98.13, against 12.49 last year. There were 92 deaths under one year of age, against 27 last year.

The number of cases of principal reportable diseases were: diphtheria, 17; scarlet fever, 4; measles, 2; whooping cough, 14; tuberculosis, 36.

Included in the above were the following cases of non-residents: diphtheria, 10; tuberculosis, 5.

Total deaths from these diseases were: diphtheria, 8; measles, 1; whooping cough, 15; tuberculosis, 33.

Included in the above were the following non-residents: diphtheria, 4; tuberculosis, 6.

Influenza deaths, 991, 63 of which were non-residents.

NOTES ON THE INFLUENZA EPIDEMIC.

There is at the present time very little abatement in the Spanish Influenza epidemic, but stringent measures are being taken by every town and city in Massachusetts and elsewhere.

Surgeon-General Rupert Blue of the Public Health Service of Washington declared that reports indicate that Boston proper, Brookline, Gloucester, Chelsea and Quincy are most seriously affected, but that many suburban towns are meeting the situation with their own resources. The Western part of the state is as yet but slightly affected.

Shortage of medical, nursing, orderly, laundry and kitchen staff because of high hospital mortality has seriously crippled the efficiency of the hospitals.

The Boston death record is as follows:

	INFLUENZA	PNEUMONIA	TOTAL
Sept. 14	9	12	21
Sept. 15	15	9	24
Sept. 16	23	5	28
Sept. 17	28	13	41
Sept. 18	30	15	45
Sept. 19	32	10	42
Sept. 20	44	10	54
Sept. 21	57	23	80
Sept. 22	44	19	63
Sept. 23	74	13	87
Sept. 24	81	28	109
Sept. 25	81	24	105
Sept. 26	123	33	156
Sept. 27	107	37	144
Sept. 28	128	24	152
Sept. 29	119	30	149
Sept. 30	142	29	171
Oct. 1	152	50	202
Oct. 2	135	40	175
Oct. 3	166	25	191
Oct. 4	154	29	183
Oct. 5	117	32	149
Oct. 6	153	37	190
Oct. 7	146	24	170
Oct. 8	123	27	150
Oct. 9	124	20	144
Oct. 10	96	28	124
Oct. 11	103	18	121
TOTALS	2606	662	3268

Lynn has opened a section of the women's Home for Christian Work for the temporary care of children made orphans by the death of their parents during the epidemic. Already six small children are being cared for. The situation is being somewhat improved.

Springfield shows a perceptible decrease in

the number of influenza cases. Hospital facilities have been provided for and 100 school teachers are taking a short course in hygiene at the Red Cross Headquarters. All schools and public meetings are closed.

Quincy is recovering slowly from the epidemic. The State of Maryland has sent a hospital train consisting of seven Pullman cars and a sufficient number of doctors and nurses to Quincy, which seems to be in greatest need of it.

Braintree and Weymouth each reported three deaths so far.

Newburyport received help from the outside to fight the epidemic. Dr. J. W. Hunter, Charleroi, Pa.; Dr. E. N. Dragonetti, Newark, N. J., and Dr. Wm. Mason of the State Board of Health, with 4 nurses and 2 helpers, arrived to cooperate with the local board. There seems to be no abatement up to the present time.

In Cambridge a slight decrease was noted in the number of deaths, while the number of new cases is about the same. It is estimated that about 6000 are sick with the disease.

Pittsfield has been ordered to close churches owing to an increase in the number of cases there.

Great Barrington reports a sudden wave of influenza, with 2000 new cases.

Brockton has called out the State Guard to help establish 200 beds in an emergency hospital for influenza patients on grounds adjoining the Brockton Hospital. Shoe manufacturers report 1400 employees absent from shoe factories. On account of the serious condition in this place, Brockton has asked for the temporary release from service of physicians now in the army. The Brockton Fair is ordered cancelled.

Norwich, Ct., reports a total of 31 deaths for the week of Sept. 29, but fewer cases are at present developing.

New Bedford reports 10 deaths and 700 new cases of influenza.

Wilmington, Del., is in the grip of the epidemic, 38 out of 104 physicians in the city reporting more than 2000 cases.

Dedham has about 500 cases.

Plymouth has ordered all churches and theatres closed. Jordan Hospital is full to overflowing.

In Gloucester there is no sign of a decrease in the number of cases. The Red Cross Emergency Hospital has now 40 patients.

Lowell influenza cases total 241 in three days.

The Brookline Board of Health issued an emergency call for nurses. The hospitals are without sufficient nurses and in many instances whole families are ill and the sick must prepare their own food.

Clinton has scarcely felt the effect of the epidemic, but the Board of Health is trying all measures to forestall infection.

The Somerville Board of Health ordered all schools closed. It was estimated that several hundred had either contracted the disease or live in households where it is prevalent.

The Harvard Infantile Paralysis Commission has temporarily suspended treatment because many of the physicians and patients are ill with the influenza.

Providence and Halifax each sent six nurses to Boston in response to help.

Newport Naval Camp reports influenza on the wane. Gov. Beeckman assisted today in the opening of a Red Cross Hospital on the grounds of the Newport Hospital to be used in caring for influenza patients. It will accommodate 40 patients. All public funerals are banned and placards are placed on houses where the disease exists.

New London, Ct., closed all schools, theatres and churches as a preventive against further spread of influenza. Between 1200 and 1300 cases have been reported.

New York has an increasing number of cases at present but the number is comparatively low. However, volunteers have been asked for and physicians and nurses were sent to railroad stations here to treat travelers showing symptoms of the malady.

Portland, Me., has had three deaths due to the influenza.

The District of Columbia has ordered all schools closed to stay closed until the epidemic is in control. All Liberty Loan parades and community centre activities have likewise been called off.

At Hampton Roads, Va., 150 cases have developed among the enlisted men.

Camp Dix has 1500 cases, from which 35 men have developed pneumonia.

Deaths among the sailors of the First Naval District are declining. The total number of cases in the district has been 3650, with 229 deaths, including 29 at Portsmouth Naval Hospital.

The combined expert forces of the Government will immediately concentrate their efforts toward stamping out this epidemic through the United States. With a special appropriation of \$1,000,000 provided by Congress, Surgeon-General Blue, coöperating with the medical authorities of the Army and Navy, will begin a vigorous campaign to check the spread of the disease which has already attacked 36 states and is killing 4% of its victims.

It was denied by the Public Health Service that any of its specialists had discovered a new serum for influenza. The Surgeon General's staff of the War Department is preparing a vaccine for pneumonia, and will be ready to announce it soon.

Henry B. Endicott, Chairman of the State Emergency Health Committee, has urged schoolteachers in Boston and throughout the state to volunteer for relief work in the fight against the influenza epidemic. "Any woman offering her services today," he says, "is doing as important work as though she were offering to go to the battle front."

The latest reports from Camp Devens show a victory over the influenza there. One week ago today 56 deaths were announced as the day's total toll of the epidemic. The report of October 6th gives only eight in the death list.

October 7th shows no deaths in 2 days at Beverly, and not a new case.

Lowell has ordered a general closing of all churches and places of public meeting. There are many houses in this section where no coal can be procured.

Lawrence reports influenza cases to the number of 1635 up to date and 49 deaths.

Brockton's latest list shows 100 per cent. increase in the number of deaths, though the board gave the opinion that the situation is now well in hand with the ample number of doctors and nurses on hand.

The Massachusetts Medical Society.

RECENT DEATHS OF FELLOWS.

Between September 15 and 29 The Massachusetts Medical Society lost by death eleven Fellows, at least eight of these being due to influenza and pneumonia. The average age of the

eight was thirty-seven years. During the whole of the last Society year the Society lost by death fifty-eight Fellows and the previous year, fifty-three Fellows.

STATED MEETING OF THE COUNCIL.

A STATED meeting of the Council was held in John Ware Hall, Boston Medical Library, Wednesday, October 2, 1918, at twelve o'clock, noon. The President, Dr. Samuel B. Woodward, was in the chair, and the following 27 Councilors were present:

ESSEX NORTH, G. E. Knrth.	PLYMOUTH, A. E. Paine, M.N.C.
MIDDLESEX SOUTH, F. E. Bateman, E. H. Bigelow, C., C. H. Cook, Edward Mellns, C. F. Painter, Godfrey Ryder, A. K. Stone, Treas., F. R. Stubbs.	SUFFOLK, J. B. Blake, V.-P., J. L. Ames, J. A. Cogan, E. G. Cutler, C. M. Green, C., F. L. Jack, J. L. Morse, Stephen Rushmore, G. C. Smith, Mary A. Smith.
NORFOLK, D. N. Blakely, E. H. Brigham, Libr., W. L. Burrage, Sec., G. W. Clement, C. B. Faunce.	WORCESTER, W. P. Bowers, Ex-P., S. B. Woodward, Pres.

A quorum being present, the meeting was called to order by the Chairman at 12.12 o'clock. The reading of the record of the last meeting was omitted by vote. Dr. Charles M. Green read the report of the Committee on Membership and Finance as regards membership.

REPORT ON MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

1. That the following named Fellows be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

Stephen Casper Burton, of Pittsfield.
Judson Worthington Hastings, of Feeding Hills, Agawam.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

David Trueman Brewster, junior, of Hathorne, with remission of dues to the amount of \$5.
Philip Hale Pierson, of San Francisco, with remission of dues for 1916, 1917, and 1918.

3. That the following named Fellows be deprived of the privileges of fellowship, under the provisions of Chapter I, Section 8, of the by-laws:

Charles Baker Adams, of Springfield.
Frank Stedman Bulkeley, of Ayer.
Frank Rudolph Coursey, of Boston.
Clarence Francis Desmond, formerly of Waltham, now of Worcester.

Edmund Scott Dow, of Allston.
Henry Ambrose Dunphy, of Thorndike.
Arthur Tenney Gage, formerly of Melrose Highlands, now believed to be in California.
Thomas Francis Godfrey, of Springfield.

Patrick James Hughes, of Lawrence.
Edward Joseph Kelley, of Watertown.
Pierce Powers McGann, of Somerville.
Elias Saul Nathanson, of Lynn.
Hervey Brackett Pitcher, of Leominster.
Frederick Artemas Simonds, formerly of Cambridge.
Richard Henry Thompson, of Malden.

4. That the following named Fellow be granted a remission of dues for the years 1916 and 1917, provided he pay the dues of 1918 on or before November 1, 1918; and that on his failure to pay the dues of 1918 as aforesaid, he be deprived of the privileges of fellowship, in accordance with Chapter I, Section 8, of the by-laws:

Clement Willis Sparhawk, of Danvers (or Middle-ton).

For the Committee on Membership and Finance,
CHARLES M. GREEN, *Chairman*.

DR. W. P. BOWERS, Secretary of the Board of Registration in Medicine, took the floor and objected to one of the names on the list of fellows to be allowed to resign, on the ground that the Board of Registration in Medicine had revoked the license of this fellow because he carried on a fraudulent scheme. Dr. Bowers said it was a flagrant case as viewed by the Board of Registration and he thought that the fellow should be expelled from the Society rather than be allowed to resign. Dr. Green explained that his Committee had placed the name on the list at the request of the Committee on Ethics and Discipline and that he should be glad to erase the name from the list of recommendations. It was voted to so erase the name and to refer it back to the Committee on Ethics and Discipline for further action. The report thus amended was accepted and its recommendations adopted by vote.

DR. GREEN submitted a report for the Committee on Membership and Finance as regards finance, and it was accepted by vote.

REPORT ON FINANCE.

The Committee on Membership and Finance makes the following recommendation as to finance:

That the affiliation with the BOSTON MEDICAL AND SURGICAL JOURNAL be continued during the year 1919, at an expense to the Society of \$3 for each member in good standing.

For the Committee on Membership and Finance,
CHARLES M. GREEN, *Chairman*.

The following petitions were read and committees appointed to consider them, as follows:

PETITIONS FOR RESTORATION TO MEMBERSHIP.

For Edward J. Cotter: A. N. Broughton, D. T. O'Keefe, Victor Safford.

For G. A. Crittendon: C. H. Mace, W. P. Stutson, J. B. Atwater.

For Harvey A. Field: M. V. Pierce, C. A. Cheever, R. D. Schmidt.

For Henry Tolman, Jr.: W. G. Phippen, Emile Poirier, G. K. Blair.

For Harris S. Pomeroy: H. K. Foster, R. E. Foss, W. G. Phippen.

On nomination by the Chairman, the following Committee to audit the Treasurer's ac-

counts was appointed: Ray W. Greene, Worcester; Charles H. Hare, Boston.

On nomination by the Chair, the following were appointed delegates to the annual meeting of the Vermont State Medical Society at Burlington, October 10 and 11, 1918: Herbert G. Rockwell, Amherst; Alfred A. Wheeler, Leominster.

On nomination by the Chair, the following were appointed delegates to the conferences on Medical Education and State Licensing Boards at Chicago, in February, 1919, respectively: H. C. Ernst, Boston; W. P. Bowers, Clinton.

The Chairman presented brief obituary notices of these councilors who had died since the last meeting of the Council: Joseph Cyrus Stedman, Jamaica Plain; Daniel Joseph Finegan, Gloucester; John Edwin Urquhart, Ashfield; Walter Warren Kingsbury, Malden.

DR. RYDER of Malden said that he wished to bring the matter of the use of sugar in candy before the Council at the request of his local society, and he introduced the following motion:

Moved: That until the end of the War the Food Commission be requested to restrict the manufacture of candy for civilian use fifty per cent. at least.

The motion was discussed by Dr. Bateman and others and a motion was made to lay it on the table. This motion was lost by a voice vote. Further discussion of the motion was participated in by Dr. G. C. Smith and Dr. Ryder and Dr. Bateman. The motion being put, was carried by a standing vote of 12 to 11. After further discussion, Dr. Bateman moved that the motion be reconsidered, and it was so voted. The motion was then amended to read:

Moved: That until the end of the War the Food Commission be requested to further restrict the manufacture of candy for civilian use.

The motion having been put, was carried.

Adjourned at 12.50, noon.

WALTER L. BURRAGE,
Secretary

Miscellany.

HEALTH INSTRUCTIONS THROUGH DRAFT BOARDS.

THE ultimate withdrawal of more than 30,000 physicians from communities throughout the country imposes an additional obligation upon the people to avoid unnecessary illness, to correct physical deficiencies that may lead to illness, and so to order their living habits, their activities, their indulgences, that they may not only avoid illness but increase their physical capacity to the utmost.

On September 23, Provost Marshal General Crowder called attention to a circular of instructions prepared by the United States Public Health Service for registrants declined in the draft because of physical disability. The circular, copies of which have been placed in all the local draft boards throughout the country, is the result of a recommendation made to General Crowder by Surgeon General Rupert Blue of the U. S. Public Health Service. The Surgeon General points out that in the first draft about one-third of the men examined were rejected for physical disabilities and that hundreds of thousands will be added as a result of the examinations to be made of the new registrants.

"It is highly desirable," said Surgeon General Blue, "that the men found to be disqualified for military service by the examining physicians of the local draft boards should receive definite instructions as to the meaning of their disabilities and that a strong appeal be made to them to correct these disabilities as far as possible. But the object of this measure is not only to reclaim men for military service or for such service as they can perform, but to lessen the burden of illness and disability among those engaged in essential industrial work. It is hoped that the instruction in this circular, which is really a primer of the physical defects of the nation, will reach far beyond the draft board and be utilized by all agencies interested in improving the public health to instruct the people with regard to their physical deficiencies and the ways and means by which they can be remedied."

According to the U. S. Public Health Service experience everywhere shows that the proportion of persons with physical impairments is considerably greater in persons between 30 and 40 than in those between 20 and 30 years of age. This waning vitality at ages over 30, so commonly accepted as inevitable, can be postponed to a large extent. In this connection, it is pointed out that 60 per cent. of the physical defects found in the last draft were of a preventable or curable nature.

In addition to furnishing all the local draft boards throughout the country with a sufficient number of circulars to supply one to each registrant rejected because of physical disability, arrangements have been made to furnish specimens of the circular to life insurance companies, fraternal organizations, labor unions, employers of labor and others who desire to reprint the circular in its present official form for wider distribution.

"The U. S. Public Health Service will be glad to furnish specimens of this circular on application and urges all organizations that can reach large groups of people to reprint and distribute the circular and thus contribute materially to the public welfare and the national defense."

The circular issued by the U. S. Public Health Service is entitled "Information for Guidance and Assistance of Registrants Disqualified for Active Military Service Because of Physical Defects." It is a four-page leaflet, containing specific information relating to the commoner causes of rejection or deferred classification, *e.g.*, Defective Eyesight, Teeth and Disease, Feet, Underweight, Overweight, Hernia, Hemorrhoids, Varicocele, Varicose Veins, Bladder, Kidney and Urinary Disorders, Ear Trouble, Heart Affections, High Blood Pressure, Lung Trouble, Rheumatism, Venereal Disease, Alcohol, Nervous and Mental Disease, and Miscellaneous Conditions. The information is presented in simple form and has been approved by the highest medical authorities. At the end is a striking quotation from President Wilson, "It is not an Army we must shape and train for war; it is a Nation." This is followed by the following personal appeals:

"Do not go through life with handicaps that may be easily removed. Do not shorten your life, reduce your earning capacity and capacity for enjoying life, by neglecting your bodily condition."

"While other men are cheerfully facing death for the cause of democracy, do not shrink from facing a little trouble and exposure to make yourself strong, healthy and fit."

Over a million copies of the leaflet have been sent out to the draft boards. Requests for specimen copies should be addressed to the U. S. Public Health Service, Washington, D. C.

Correspondence.

CLINICAL NOTES ON INFLUENZA.

Boston, October 1, 1918.

Mr. Editor:

I wish to submit the following clinical notes in the cases of influenza. In a marked case of influenza one is impressed by redness or flushing of the central parts of the face. This flushing is distributed on the lower parts of the cheeks, lower part of nose, a little on lower part of forehead, central part of upper lip and chin.

Often a patient presents himself with a normal pulse, a temperature below 98° F., and very slight symptoms of influenza. These may be only headaches, fatigue or chilliness. One is at a loss to know whether this patient is nervous or fatigued. In this abortive or ambulatory type of influenza I have observed marked redness to slight flushing of the lower half of the uvula, associated with edema. When this sign is present I treat them as cases of influenza and keep them strictly in bed until all symptoms have disappeared. This sign is not present in cases where there has been fever for two or three days.

A fact of interest in the treatment of the disease in my experience has been the different value of phenacetine and aspirin as regards adults and children. Adults react very favorably to phenacetine and caffeine citrate, while children react very favorably to aspirin and sodium bicarbonate. This point in

therapeutics may well be related to the milder result of infection in children.

Very truly yours,

SAMUEL W. MYERS, M.D.

34 McLean St., Boston.

HEARING TESTS.

Boston, September 30, 1918.

Mr. Editor:—

In the JOURNAL of September 26, 1918, Capt. Callahan established a law on registration of stimuli of different intensity in the brain, and applied the same to hearing as the basis of a hearing test. While the law may hold true in sensations of only one nerve center and in the absence of volition and concentration, such as pain, emotions, and other psychical conditions, the writer does not believe it to be valid in other sensations, such as hearing.

The fact that the person with normal hearing in one ear and defective hearing in the other, or defective hearing of different degrees in both ears, can hear whispered voice sound at a given distance and a tuning-fork for a given number of seconds with both ears alike, proves the fallacy of the application of the law to hearing as, in this case, the two stimuli of different intensity are registered simultaneously in the brain; for, in spite of the fact that the pitch, intensity and quality of the sound were equal so far as the vibrations were concerned, up to the drum membrane, it certainly varied from there on through the entire conductive apparatus on account of the different pathological condition. The Captain can try it out on his present apparatus, or his seventy-five cent one, if he believes that he is testing the air conduction by applying a tuning-fork to the tube.

What we are actually concerned in is to know how much hearing there is in a given ear where concentration plays a great rôle; and, after all, the tuning-fork gives us the most accurate information. A person may not hear very well simply because he does not pay attention. We wish to know how much hearing there is in the ear at a time when the subject concentrates all his efforts on hearing, as in the army in obeying the orders of his superiors.

Might the Captain be asked to explain his Test No. 2? The writer does not understand it; there seems to be a lack of intelligence in the subject examined.

It seems, so far, that the test of hearing and bone conduction through the walls of my instrument appears to be the most plausible method of detecting malingering; and one is certainly justified in using a legitimate, scientific and skilful method against illegitimate trickery of a patient.

Yours truly,

JOSEPH PRENN, M.D.

ANESTHETIC TECHNICIANS.

New York, October 1, 1918.

Mr. Editor:—

A gradually increasing misconception of the art of anesthesia has led to a rather unique condition of affairs.

We find that nurses and other lay persons may, by the simple acquisition of a few rules, become anesthetists. Large institutions have adopted the nurse anesthetist upon grounds of economy, expediency and even sentimentality. It is argued that these workers can be employed at little expense, that the supply meets the demand and that the feminine element eliminates fear and works for smoothness during the induction of the anesthesia.

These institutions may employ lay persons to take their x-ray pictures and to make urinary, blood or sputum examinations, but does anyone dream of speaking of these workers as the hospital Roentgenologists or the attending pathologist? They are employed as technicians. The nurse who administers an

anesthetic is an anesthetic technician. She can never be more without a medical degree, for in order to understand the language of anesthesia, one must have intimate acquaintance with anatomy, physiology, medicine, surgery, diagnosis, psychology and special branches.

The nurse who, in discussion with a medical man, attempts to defend a theory relating to anesthesia cannot fail to feel the presumption of it and, if graced with wit, to see the absurdity of such a position. Yet it has actually come to pass that medical men have suffered themselves to be instructed by a nurse in the theory and practice of anesthesia.

In justice to an important branch of surgery and to our medical confrères who devote their training and their energy to its development, let us drop the term "anesthetist" as applied to its non-medical workers and adopt the term "anesthetic technician."

PAUL J. FLAGG.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 The Fenway, Thursday, November 7, 1918, at 4 o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least one week before the examination.

GEORGE R. MINOT, *Secretary*.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—The Censors will meet to examine candidates on Thursday, Nov. 7, 1918.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.—To accord with the request of the Health Department, the October meeting of the Society will not be held.

DONALD GREGG, M.D., *Secretary*.

RECENT DEATHS.

KENNETH FIELD ALBEE, M.D., died at his home at Weston, September 24, 1918, aged 32 years. Dr. Albee took the degree of Ph.B. at Brown University in 1910, being a Phi Beta Kappa man. In 1914 he was graduated from Harvard Medical School, settled in Weston and the next year joined the Massachusetts Medical Society and the American Medical Association.

PHILIP TOWNSEND BUCKLEY, M.D., died at his home in South Boston, September 19, 1918, of pneumonia. He was born in Boston, September 15, 1856, was educated at the Boston Latin School and Harvard College, where he received the degree of A. B. in 1880. Four years later he took his M.D. at Harvard Medical School and settled in practice in South Boston, joining the Massachusetts Medical Society in 1886. He was a member of the South Boston Medical Society.

WALTER WARREN KINGSBURY, M.D., died at Malden, September 15, 1918, aged 44. He was a graduate of Tufts College Medical School in 1905, and joined the Massachusetts Medical Society the following year.

WALTER IRENAEUS RYDER, M.D., died at South Boston, September 24, 1918, of pneumonia, aged 29 years. Dr. Ryder was a native of Newton, Mass., and a graduate of Tufts College Medical School in the class of 1913. He had been an assistant surgeon in the Navy since the beginning of the war and had been stationed in Maine until recently when he became a member of the Officers' Military School at Cambridge. He had been active in treating the victims of the influenza epidemic and contracted the disease. He is survived by his widow, Dr. Bernadette Marie McWeeny Ryder, and by a brother, Commander Charles E. Ryder, a surgeon in the Navy.

CHARLES ANTHONY ORDWAY, M.D., died at his home in Everett, September 24, 1918, aged 44 years. He was a native of Concord, N. H., where he was born October 11, 1873. Graduating from Dartmouth Medical School in 1896, he settled in Chelmsford and joined the Massachusetts Medical Society that year. In a year or two he moved to Everett, where he had since practised. He was a member of the American Medical Association.

LOUIS MILTON SALVIN, M.D., died at Roxbury, September 25, 1918, aged 31 years. Dr. Salvin was a graduate of Boston University School of Medicine in 1914, and was a Fellow of the Massachusetts Medical Society. He practised laryngology and rhinology and had a Boston office.

CAPT. CHARLES A. STURTEVANT, one of the leading homeopathic physicians in New Hampshire, died on September 23, at Camp Devens, of pneumonia, which developed from influenza. He was a graduate of Boston University and held membership in the American Institute of Homeopaths, the American Medical Association and was President and Secretary of the New Hampshire Homeopathic Medical Society.

DR. FREDERICK L. HILLS, who for seven years prior to July, 1917, was superintendent of the Bangor State Hospital, died in New York. He was 48 years of age, a graduate of the College of Physicians and Surgeons, Columbia University, and, prior to coming to Bangor, was on the staff of the state hospitals at Danvers, Mass., and Concord, N. H., and superintendent of the tuberculosis sanitarium at Rutland, Mass.

DR. FRANK T. MARA, Holy Cross, '86, and Harvard Medical School, '90, died at St. Elizabeth's Hospital recently after a week's illness with influenza. He had been administering to the wants of the poor up to the time of his going to the hospital.

DR. H. A. HANDS of North Cambridge, died before medical aid could reach him, while visiting a patient in West Somerville. He was born in England and came to this country when a young man. He had been practising medicine in Cambridge for the past 36 years.

DR. BERNARD H. WHITNEY died at his home in Dedham, Mass., from pneumonia, following an attack of grippé. He was born in Decatur, Ill., but had lived in Dedham for many years. He was Chairman of the Massachusetts Board of Optometry for several years.

DR. HOMER Z. LEACH died at his home in Gilbertville, Mass., on September 25, from pneumonia, following influenza. He was graduated at Dartmouth Medical School, 1905, and had practised in Gilbertville for 12 years. He was Assistant Medical Examiner of the North Worcester District, a member of the Brookfield Medical Club and of the Order of Masons.

DR. JAMES A. SCANLON died recently at his home in Roxbury.

RALPH EMERSON STEVENS, M.D., died at his home in Marlborough, September 18, 1918, of nephritis and heart disease, aged 50. Dr. Stevens was born in Marlborough, December 2, 1869. After graduating from Harvard Medical School in 1897, he served as house physician at Boston City Hospital. In 1899 he joined the Massachusetts Medical Society. He was a member of the Marlborough Medical and Surgical Society.

ORION VASSAR WELLS, M.D., died at his home in Westford, October 4, 1918, aged 38 years. He was a graduate of Harvard Medical School in the class of 1900, and was a Fellow of the Massachusetts Medical Society.

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"VENEREAL DISEASE"?

By C. MORTON SMITH, M.D., BOSTON.

*Chief of Staff, Department of Venereal Diseases,
Massachusetts General Hospital.*

AND

ORA MABELLE LEWIS, BOSTON,

*Social Worker, South Medical Clinic for Syphilis,
Massachusetts General Hospital.*

TERMS used in an exact science should have real significance expressing definition, differentiation and accuracy, thus enabling one at all familiar with the subject involved to place the term readily in its proper category. This is partly true in the field of medicine, one of the glaring exceptions being syphilis and gonorrhea, two distinct infections which have no common scientific basis in cause, symptoms, treatment, or control. These two diseases survive by common consent as "venereal diseases." Why? Because *socially*, not scientifically, they are still assumed to have a common factor, a sole cause—immorality.

Infants with ophthalmia neonatorum, or little girls with vaginitis may have a gonorrheal infection but one cannot justly accuse such children of having "venereal disease." Children with hereditary syphilis, adults with tru-

ly accidental extra-genital infections of syphilis (lip, tongue, tonsil or fingers), and the man or woman contracting syphilis or gonorrhea through marital relations, with no illicit action on the part of at least one of the parties involved, should not be put in the class of people suffering from a "venereal disease," remembering that the term is applied only because of its social cause. These people are all suffering with a definite infection of syphilis or gonorrhea, so let us call the diseases by their true scientific names and not by an all too confusing general term.

No educational campaign was ever more effective because of cloudiness of definition used in its publicity. No physician or public health official ever gained the confidence of patient or community by veiling definite facts under general inclusive terms. Courts of justice assume that every human being is legally innocent until he is proven guilty. Why should not every patient infected with syphilis or gonorrhea suffer from a "chronic contagious disease" and be treated in a department for syphilis or a G. U. clinic? Why should they all be suffering from a "venereal disease" and be treated in a venereal disease clinic? These people have a right to their innocence until they have been proven otherwise, and even the most careful investigations may be prejudiced

by the false premise assumed. This is especially true in cases of accidental infections.

Many of the old medical terms and names of diseases have no scientific basis, and are continued in medical nomenclature simply on account of long usage. Venereal disease or "The Venereal" was a term applied to syphilis, chancre, and gonorrhea long before their etiology was known, and many of the best medical men believed they represented only different stages or manifestations of the same infection. This idea remains in some lay minds of the older generation—they still fear that syphilis may develop from neglected gonorrhea. The medical profession as a whole had begun to recognize that no one homogeneous term could satisfactorily cover two diseases having so many scientific and clinical points of variance and involving such widely different medical and social treatment as syphilis and gonorrhea. Social workers and the general public were following close in the lead of the medical profession and it seemed to many of us that a great step had been taken toward a better understanding of the two diseases, both medically and socially, and a clear understanding is the greatest asset in solving a difficulty.

The war has seemingly turned the wheels back again, and we shall but add even more to the general confusion unless we keep always in mind what the Army and Navy mean when they use, as they do constantly, the term "venereal disease." For the use of the term by the Army and Navy presents to them no such confusion as when used by civilians and in relation to civilian matters. Syphilis and gonorrhea are powerful enemies of any army or navy and must be conquered or controlled if the men are to be kept "fit to fight." In this connection it might be said that continence is almost as effective a means of prophylaxis against syphilis and gonorrhea as mosquito bars are against malaria and yellow fever. And there is a certain analogy between the draining of swamps, and the compulsory cleansing of vast numbers of persons whose unchangeable habits of life keep alive in our midst the active agents of disease. Disciplinary methods indispensable to the army are perfectly impracticable as applied to the community at large. Not by merging these two points of view but by keeping them absolutely distinct, can the military and civil authorities

meet on common ground to effect a solution of the problem on a permanent basis.

After men have been accepted for the army and navy there is ample justification for the use of the term "venereal disease." Among the cases of syphilis and gonorrhea which occur in service the source is generally from venereal exposure. It is true that a certain number of men accepted for the army and navy have syphilis or gonorrhea at the time of enlistment but they present to the examining board only a physical or medical problem and are judged as such; the question of how the disease was contracted does not affect the status of men infected *previous* to enrollment. When syphilis and gonorrhea are contracted after enlistment they will be separated in the mind of the commanding officer and attending physicians, and the patient will be treated *medically* according to the diagnosis. But from a purely *military* standpoint a prophylaxis must be outlined with the same end in view as would be the case if malaria or yellow fever were being combated, and it becomes largely a problem of preventing or minimizing exposure and new infections. The solution involves health talks, moving pictures, rules, regulations, courts-martial, deranking of officers, establishment of camp zones, and bills before Congress for the purpose of making these military measures universal in effectiveness rather than sporadic and spasmodic. A large part of the work of the War Department Commission of Training Camp Activities and many branches of civilian war work are directly aimed at preventing any increase in the amount of actual venereal exposure in the army and navy, in the repression of prostitution, and in a cleaner civilian population. Reports coming from the American Expeditionary Forces in France and elsewhere—and based on first-hand information—tell us that on the whole, among our men at the front there are fewer fresh infections of syphilis and gonorrhea than would be found among the same number of men in civilian life.

Let the Government, then, attack this question from a military standpoint as a venereal disease problem, remembering that from a medical angle it has no such common classification, but is based on truly scientific distinctions which demand different treatment both medically and socially. But let us continually guard

against using terms in war times which will add to the confusion in the peace time to come. All health campaigns and educational work should be carried on with this clearly in mind. The more work we can do in time of war on a firm peace time basis, the greater *real* progress will be made. Let civilian educational work go on with renewed vigor among men and women alike on a simple scientific basis, grouping syphilis and gonorrhea *only* as two distinctly characteristic and symptomatic infectious diseases to be treated as such for the sake of both patient and community, and do away as rapidly as possible among civilians with the falsely accusing homogeneous term "Venereal Disease."

Selected Papers.

RODENT ULCER.*

BY WALLACE BEATTY, M.D., DUBLIN, IRELAND.

Honorary Professor of Dermatology, University of Dublin; Physician to the Adelaide Hospital.

THE origin and nature of rodent ulcer are still matters of controversy. In my work in the Dermatological Department of the Adelaide Hospital I have met with a considerable number of cases of rodent ulcer, and have found it hard to explain some of its features, more especially in contrast between the clinical history and the histological findings. As far as I am aware, this subject has not hitherto been brought before the Academy, yet it presents many points of interest clinically, pathologically, and therapeutically, which seem to be worthy of discussion by us here, and, indeed, the subject ought to be specially pleasing to us, as the first accurate clinical picture of rodent ulcer was given by Dr. Arthur Jacob, of Dublin, in 1827. In *The Practitioner* of July, 1915, Dr. Graham Little gave an excellent account of rodent ulcer. I have found this account very helpful in preparing this communication. I hope the members of the Academy will pardon me for describing the clinical symptoms and anatomy—so familiar to us all. I do so in order better to lead up to the question of the origin and nature of rodent ulcer.

Rodent ulcer is, in the majority of cases,

limited in position to the upper half of the face, especially the neighborhood of the eyes and nose. But it may occur on other parts of the body. It has two stages: a non-ulcerated and an ulcerated stage. It begins usually as a smooth nodule, firm, and of pearly or waxy translucence. It may be extremely small at first, the size of millet seed, and projecting very slightly above the surface. It increases slowly, and reaches the diameter of a pea or shilling. It tends to become umbilicated. The raised edge may present a granular aspect—mammillated—and fine venous ramifications may be seen coursing over it. This is the early, first, or non-ulcerated stage. The average duration of this stage is from three to six years, but it may be much longer. There is no peripheral inflammation. Sooner or later ulceration commences in the center, while the margin is raised, firm, and of pearly lustre. The ulcerated surface is usually covered by a crust. It readily bleeds when rubbed.

The essential characters of rodent ulcer are:—

(1) Slowness of progress. A small rodent ulcer may have had already a duration of many years—five, ten, or more.

(2) Margin raised, firm convex (so-called rolled), of glossy or mother-of-pearl appearance; a circular ridge. In extremely small rodent ulcers the margin may be extremely thin, $\frac{1}{2}$ to 1 millimetre in breadth, but even when of such extreme tenuity its firm, glossy, pearly appearance is characteristic. Small nodular thickenings may extend from the border.

(3) Non-involvement of the lymphatic glands.

(4) Absence of pain except in later stages.

The extremely slow progress, the firm mother-of-pearl border, and the non-involvement of the lymphatic glands differentiate rodent ulcer from squamous-celled cutaneous epithelioma. It may begin as early as the age of twenty (this is very rare), or as late as eighty. It often commences at about the age of forty. It appears to be rather more common in men than in women. Some observers have met with the reverse in their statistics. Of 52 hospital cases of which I have records there were 15 males and 37 females. Rodent ulcer may be single or multiple. Multiple rodent ulcers have to be differentiated from Brooke's "Epithe-

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland. Reprinted from *The Medical Press* of Aug. 7, 1918.

lioma Adenoides Cysticum." Graham Little considers Brooke's tumor to be rodent ulcer. Rodent ulcers, after remaining superficial for years, may take on deep action and lead to hideous deformity. Thus rodent ulcer, beginning near the eye, may later involve the eye itself and the orbit. Sometimes the ulceration involves the whole area affected; in this case there will be no "rolled" pearly edge, but the ulceration is bordered by a fine excavated margin, a shallow, extremely narrow, marginal excavation. Such a condition is met with on the forehead and spreading over the front of the scalp, and may involve a considerable area. It may cicatrize in part, and may cause death if it takes on deep destructive action and leads to involvement of vital organs or to hemorrhage.

Histology. . . . (cf. Unna's Histopathology). I quote Unna's description: "There is in the early stage a very circumscribed thickening of the prickly layer, which raises and smooths the horny layer. The horny layer is very little thickened. From the base of the prickly layer there is a downward extension of a few cylindrical epithelial processes; these processes are connected with the epidermis by a small neck. These processes widen a little, wind laterally or round one another, and terminate in the middle of the cutis. They are surrounded by a broad wall of plasmona (plasma cells).

"The interepithelial connective tissue, i.e., the tissue between the epithelial columns, becomes increased—swollen and multiplied spindle cells are found—a new formation of fibrous tissues takes place. Very slowly the cylindrical processes extend into the thickened connective tissue. The processes twist and wind in a most complicated manner; when their advance is arrested they send off lateral processes. Thus the tumor presents a reticulated character. The growth always remains flat.

"The cells inside the epithelial processes (columns) are altered in shape owing to the abnormal density of the connective tissue around. These central cells of the processes become elongated—spindle and rod shaped. The peripheral cells of the processes are exceptionally cubical (never cylindrical); they may be spindle-shaped. While the epithelial processes are ever increasing they never completely run together, but are always separated by firm connective tissue.

"In the second, ulcerated stage, the ulcer-

ation takes place very slowly and superficially, and there is a tendency to 'skinning over' by spreading over the epithelium from the periphery. So in many places it would appear as if the old epidermis still clothed the ulcer."

Unna explains the indolence, long duration, and resistance of rodent ulcer by: (1) the resistance of the connective tissue; (2) the tendency to skinning over. Unna adds: "When, as sometimes happens after the rodent ulcer has remained superficial for many years, it begins to involve the depth, the special character disappears, and the growth resembles the ordinary ingrowing cancers. This is due to degeneration of the connective tissue, which becomes edematous, and no longer offers a barrier to the spread of the epithelium. Thus the scirrhus type of the rodent becomes changed into the medullary type of cancer." This may be regarded as the third or final stage of rodent ulcer.

There is much difference of opinion among pathologists as to the origin of rodent ulcer. The cells which form the epithelial columns are smaller than the cells of an ordinary epithelioma, are not united by prickles, and do not become horny. There are three different views as to the origin of these cells:

(a) Derived from the surface epithelium. This view is the one Unna adopts, as is described above. The difficulties about this view are:

(1) There is difficulty in finding a connection between the epithelial columns of the tumor and the surface. This connection, however may usually be found if careful serial vertical sections of the tumor are made.

(2) If the cells are derived from the surface epithelium, why do they not tend to complete their evolution and become horny?

A view has been put forward that the origin of rodent ulcer is from the basal cells of the epidermis, and not, as in ordinary epithelioma, from the cells higher up. According to this view, rodent ulcer is a carcinoma basocellulare. This view appears to me very fanciful (Malory considers it absurd!). It appears to me fanciful to conclude that from the surface epithelium there are two kinds of epitheliomata, one starting from the basal layer of the rete mucosum (rodent ulcer); the other from the higher, more differentiated prickly cells about to become horny (squamous-celled epithelioma).

In health the only cells of the epidermis

which proliferate are the basal cells of the rete mucosum, the so-called germinal layer. These alone show the proof of proliferation—viz., mitoses of the nuclei. These basal cells are, therefore, in health, the mother-cells of the horny layer, *i.e.*, these cells complete their evolution by becoming horny. Why should they not do this in rodent ulcer? No doubt in epithelioma mitoses are found in the higher prickle cell layers as well as in the basal layer. But this only shows the enormous activity of the prickle cells generally in epithelioma. (b) Derived from the epithelium of the sweat glands. A cylindrical carcinoma. (c) Derived from the cells of the hair-matrix. A hair-matrix carcinoma. This view is held by Mallory (*cf.* his "Principles of Pathologic Histology").

Mallory writes: "The cells which arise from a hair-matrix and from the hair and its sheath do not differentiate except to a slight degree, in the way that the cells of the epidermis do. Tumors arise not infrequently from hair-matrices; the cells composing them tend to differentiate in the same way as do the cells normally arising from these structures. The cells are characterized by their cubical cylindrical or spindle shape, their small amount of cytoplasm, and their intimate relation to each other, etc. The tumor usually grows slowly. It may spread widely in the corium and form connection with the overlying epidermis at many points," etc. Mallory, it will be observed, explains the elongated shape of the cells in the epithelial columns from their origin, and not from pressure of the intervening connective tissue.

I confess I find it difficult to accept the hair-matrix origin of rodent ulcer, or that cells arising independently from the depth could, growing up, form a perfect connection with the epidermic cells. Yet it is difficult to account for the smaller size of the cells as compared with those of an ordinary epithelioma, the absence of prickles, and the absence of keratinization. It is interesting to compare the character of the epithelium with that in soft nevi. In the latter the cells, undoubtedly of surface origin, have, owing to a change called by Unna metaplasia, lost their prickles, and extend into the cutis in columns or strands or streams, losing in many places their connection with the prickle cells of the surface. I shall refer to this presently.

If one regards rodent ulcer as a carcinoma, the contrast between the rapid growth of ordinary epithelioma and the slow progress of rodent ulcer may be explained thus. There is through life a continuous conflict between growing epithelium on the one hand and the adjacent connective tissue on the other. In health a balance is maintained. As age increases epithelium tends to increase. If the connective tissue maintains its power of resistance the epithelium can increase only at the surface, *e.g.*, warts, senile keratosis. In rodent ulcer the connective tissue has begun to give way, but only in places. But it offers considerable opposition, hypertrophying, and only allowing the epithelium to grow in narrow cords or columns of varying thickness, which form a kind of acinous arrangement or network through the connective tissue. The resistance of the connective tissue is extremely great at the surface, so that the epithelium can penetrate only in a very few places and in very narrow cords. Hence the difficulty in finding a connection in sections between the epithelial columns of the tumor and the surface epithelium. In ordinary epitheliomata the resistance of the connective tissue is practically nil. The epithelium makes its way unopposed into the connective tissue and lymph cells, and many cells complete their evolution, and become horny.

It is difficult to understand why the cells of a rodent ulcer, which multiply much more slowly, should be without prickles and should not keratinize. It is noteworthy that when a rodent ulcer, after years of slow progress, begins to penetrate deeply, it may assume the ordinary character of a squamous-celled epithelioma. Then the resistance of the connective tissue is lost, owing to degenerative changes.

Epithelioma Adenoides Cysticum (Brooke). Side by side with rodent ulcer it is well to consider this affection, clinically so unlike, histologically so like, rodent ulcer. Some, including Graham Little, consider it a form of multiple rodent ulcer. Unna places it side by side with syringadenoma (*i.e.*, adenoma of the sweat ducts), and gives a careful account of the differential diagnosis between these two affections. I give Unna's description: "It consists of multiple small pinhead to pea-sized shining nodules; at first of color of the skin, later pale yellow or bluish, some containing

milium-like insertions (Unna). It has a predilection for the region of the eyelids, root and alae of nose, adjacent part of cheek, and surroundings of mouth."

Histological Examination. Solid epithelial processes derived from the surface epithelium or from the prickly layer of the lanugo hair follicles grow into cutis in the form of finger-like processes, glandular protuberances, net-like or lattice-like pattern, completely solid cones. It affects the entire cutis. The epithelial masses are bordered by palisade (cylindrical) cells. There is round the cell masses an abundance of cellular connective tissue. Cysts, colloid or hyaline, are present, surrounded by epithelial masses. These are due to epithelial degeneration.

One may find a solitary tumor with the same structure, just as one may find a solitary tumor with the same structure as that of multiple hidradenoma. Cases of epithelioma adenoides cysticum of Brook, have been described under other names. Thus, Perry's case of "adenoma of sweat glands" is an example (see "International Atlas of Rare Skin Diseases"). Unna, in the supposition that the cells of the tumor are connected by prickles, calls Brooke's disease "acanthoma adenoides cysticum."

To Recapitulate. How are we to explain: (1) the extremely slow progress of rodent ulcer; (2) the smaller size of the cells, the absence of prickles, and the absence of keratinization as compared with an ordinary epithelioma?

The Slow Progress. Rodent ulcer is clinically non-malignant; a rodent ulcer untreated may remain small for many years. If it is a carcinoma, whether derived from the surface epithelium, the epithelium of the hair follicle, or the epithelium of the sweat glands, why is it so slow in its growth? Is this altogether due to the opposition to its growth offered by the connective tissue?

The Character of the Cells. If the sweat gland origin of the growth be adopted, the character of the cells is explained, but, as just said, why the little malignancy? The view that has been suggested, that rodent ulcer is of nevus nature, may now be considered. The word "nevus" is used in a broad sense. "A congenital alteration in the color or texture of the skin of limited extent, benign, appearing at birth or developing later" (a French

definition). I confess this nevus nature idea appeals to me, and would explain many difficulties: (1) The extreme chronicity; (2) the unusual character of the cells as compared with those of an ordinary epithelioma. I offer a suggestion—it may be extremely fanciful, it is this. In soft moles we see columns or streams of cells more or less broken up by collagen fibers. Unna has proved these to be of epithelial origin. These cells are derived from the epithelium of the surface, but have lost their prickles by a change which he calls metaplasia.

Is a rodent ulcer an epithelial growth, starting from a microscopic soft nevus, present at birth, and developing later; and is its reticular form due to the presence of the fully-formed connective tissue, the columns of cells making their way as best they can? Brodie has suggested the mole origin.* Still another fanciful idea. Sweat glands are formed in embryonic life by downward projections from the epidermis. The cells of sweat glands never become horny. Might the streams and columns of cells in soft nevi (moles) be abortive supernumerary sweat glands? From this we could have a transition to the tumor known as hidradenoma, and to rodent ulcer and to epithelioma adenoides cysticum, or, as some would have it, cystic rodent ulcer. In this case rodent ulcer would be a nevus of the sweat glands. When a rodent ulcer takes on malignant action, what has happened? Is it still simply a rodent ulcer, or has it become complicated with an ordinary epithelioma? A rodent ulcer epitheliomatized! And when, exceptionally, in a rodent ulcer some horny cell nests are found, is the rodent ulcer similarly complicated? When treatment of a rodent ulcer fails to cure, its growth may be hastened; for example, after repeated x-raying, after repeated application of radium, or after unsuccessful excision. Has the rodent ulcer then, from irritation, become epitheliomatized?

THE TREATMENT OF RODENT ULCER.

I shall make only a few remarks on treatment. The following are the methods of treatment adopted in different cases:

(a) *Excision.* As the majority of rodent ul-

* Adamson is inclined to regard rodent ulcer as of naevous nature.

cers are on the face, this plan can be adopted only when the lesion is small, and can be completely removed without a disfiguring cicatrix. Recurrence, even in small tumors, after excision, is frequent. I met with a pea-sized rodent ulcer below the mastoid process which was widely excised by Mr. Gordon, and yet it recurred soon after, and was cured lastingly by x-rays.

(b) *Ionization*. Ionization by zinc ions is a good treatment, but it is painful, and has to be repeated frequently.

(c) *X-rays*. Sabouraud recommends a full Sabouraud pastille dose every 18 days for six times. X-rays are often successful; even one full pastille dose may be sufficient, but often a much greater number than six may be needed. Graham Little refers to a case eventually cured after 95 applications of the rays. He does not mention, however, what the dose was in each case. Sabouraud's plan is a good one, but if the rodent ulcer is not cured by six applications, according to his method, it will be advisable to space further administrations of the rays over a longer interval—five to six weeks. Some authors recommend one single massive dose of the x-rays, viz., three full Sabouraud pastille doses at once. I have no personal experience of this method.

(d) *Carbon Dioxide Snow*. The treatment by carbon dioxide snow (temperature, 79° F. below zero) is often extremely useful. The snow is applied under firm pressure for twenty or thirty seconds. A vesicle or bulla forms in a few hours, and in the course of some days dries into a crust. The crust may remain adherent for a fortnight. One application may cure, but a repetition may be necessary, and is always safe.

NOTE.—I have omitted to mention treatment by radium, as I have no *personal* knowledge of its value in rodent ulcer. Indeed, I have said very little about treatment, as the main object of my paper is to discuss the origin and nature of rodent ulcer.

Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

BY EMIL MAYER, M.D., NEW YORK. ABSTRACT EDITOR.

THE president, Dr. Thomas H. Halsted, Syracuse, New York, called attention to the fact of this fortieth anniversary comprising practically the whole period of modern laryngology.

He paid a tribute to the memory of Dr. E. Fletcher Ingals, a founder of the Association, who died but a few days before the meeting, and who remained to the last an Active Fellow, furnishing last year one of the most valuable papers of the meeting.

He welcomed, also, Dr. H. S. Birkett of Montreal, one of the Fellows of the Association who, responding promptly to his country's call, had spent nearly four years in active service, rising to the highest rank and responsibility.

Each Fellow of this Association feels a personal pride in these achievements.

Of an active membership of eighty-two, 30% are in the active Naval and Military Service of the United States, which is a very creditable showing, considering the average age of its Fellows.

The speaker then presented for the subject of his address:

A DIAGNOSTIC CLINIC FOR PAY PATIENTS.

While organization of hospitals for the care of ward cases and dispensaries for free ambulatory cases have been well organized, there has been no combined arrangement for the care of private patients, hence it frequently happens that a diagnosis cannot be made because of the expense involved in calling in as many physicians as the case really demands.

Ofttimes the patient seeks relief by consulting various physicians of his own volition, producing disappointing results.

It sometimes happens that the right physician is accidentally consulted, and the cause of the obscure symptoms found, with a resulting cure.

It is for the profession to devise the means of correcting this very grave fault. As a re-

sult, there have arisen many institutions where the medical staff is composed largely of specialists of different branches. While some of these institutions are excellent in every way, the great majority are not of this character, and as long as they are purely commercial organizations they never will be.

The speaker said that the scheme devised, worked out and practised for nearly three years by the Clinical Club of St. Luke's Hospital, San Francisco, offered the best foundation from which to build a diagnostic clinic, and that it had met this particular situation.

The medical staff of this hospital consists of twenty-four full staff members, four consultants and ten assistants, with an excellent clinical laboratory and complete x-ray department.

In the hospital to which the speaker is attached, the first choice was given the regular staff, after which the assistants were given an opportunity when vacancies arose. The staff was divided into two groups, serving on alternate months, with a third group, known as the auxiliary group, made up of those specialists whose services would not be required in every case. The latter become available in any case in which the group chairman thinks such service desirable.

The chairman is responsible for the history of the case, and after his examination is made, arranges for the visits of the other members of the group, together with such members of the auxiliary group as he may desire. A supervising nurse keeps the records and attends to the financial end of the work, sees that specimens are furnished the laboratory, arranges the details of the physician's visits, is present at all examinations, typewrites the notes and attends the general consultations, taking the minutes and transcribing them.

After all examinations, clinical and laboratory, have been completed, a general consultation of all who have had to do with the case is held, and every possible diagnosis arrived at, the physician referring the case being present and participating in the consultation.

A satisfactory conclusion having been reached, a report is sent to the referring physician, a second copy to the patient or his responsible relative whenever this seems desirable, and a third retained in the files of the clinic.

Only cases that are obscure and complicated, and apparently cannot be diagnosed by the average physician, are accepted by the clinic.

A minimum fee of \$50.00 and graded upward, according to the patient's financial situation, is charged. Such fee includes the services of the medical man and of the laboratory and x-ray departments, as well as of the supervising nurse. In addition, the hospital charges regular room rates for time occupied.

The portion of the fee remaining will be finally divided equally among those who have examined the case, to be received by them individually or be voted by them for the purchase of new equipment for improving the service of the clinic of the hospital, the latter being expected to be the disposition of the funds for some time to come.

In rendering this service they will themselves receive much knowledge and should benefit greatly through these examinations and consultations, adding materially to their diagnostic ability.

The hospital will benefit by the steadily increasing efficiency of its staff.

Finally, the speaker called attention to the work of its committee in the National Council of War Defense, and requested a quick response to the appeal of the Surgeon-General for voluntary medical service to meet the demands of the drafted army.

Each man must weigh the matter for himself, and putting aside any argument and all questions of personal advantage, reach a decision that he will be willing to submit to the scrutiny of his fellows, and abide by their decision. Those who can go are to be congratulated; they are to be envied; they are the favored ones of the profession. A doctor who in this emergency can conscientiously go and fails to respond to his conscience and his country's call, putting a selfish profit first, is not to be envied but to be pitied.

To commemorate the fortieth anniversary of this Society, a historical review of the early days of laryngology was read by the honorary president, Dr. J. Solis Cohen of Philadelphia, followed by Dr. D. Bryson Delavan of New York.

The scientific program then followed with the papers and discussions here presented.

REPORT OF SOME INTERESTING CASES OF VINCENT'S ANGINA.

CLEMENT F. THEISEN, M.D., ALBANY.

There are two distinct clinical types of the disease, one form to be differentiated from

diphtheria and other pseudo-membranous anginas occurring almost exclusively in young people, while the other form has a localized ulceration, simulating syphilis, occurring mainly in adults, usually, in the writer's experience, associated with carious teeth, especially in those whose mouths are not well cared for.

The odor is distinctive and characteristic, and if not promptly treated, extensive ulceration of the fauces occurs, with fatal ending.

The writer has had two fatal cases,—one previously reported in 1912, and the other a recent case in a man thirty-two years of age. The uvula and part of the soft palate had been practically destroyed, and there was deep ulceration of both tonsillar surfaces and of the gums around the last molars. The ulcerated surfaces were covered with a tenacious pseudo-membrane. The molar teeth were badly decayed, and the gums bled easily when touched with a probe. The odor was so bad that it required a good deal of courage to examine him. He said the condition had been going on for several weeks, and he had received no treatment. He had been using a mouth wash of peroxid and water.

He was in an extremely weakened condition, because the pain in swallowing was so severe that he had not been able to take much nourishment. No history of syphilis could be obtained. Smears from throat swabs verified the diagnosis of Vincent's angina.

He was given a strong solution of potassium chlorate, powdered alum, carbolic acid, glycerin and water, to be used as a gargle, and locally the ulcerated surfaces after cleaning were swabbed with a saturated solution of methylene blue in alcohol. He was given K.I. in large doses. This is always administered in the writer's cases, whether a history of syphilis is obtained or not. Blood count showed a moderate leucocytosis. He failed steadily in spite of all efforts, and died about two weeks after he was first seen. The larynx was not involved in this case.

Salvarsan was used both locally and intravenously without any appreciable effect. No autopsy.

Pure alcohol swabbed on the ulcerated surfaces is also extremely valuable. The greatest difficulty is in having the severe cases get enough nourishment, because the pain in swallowing is often so great. A solution of orthoform in olive oil, swabbed on the ulcerated sur-

faces before meals, affords a certain amount of relief. A spray of carbolic cocain in the worst cases gives more relief than anything else, if used a few minutes before meals. In some of the adult cases of the ulcerative type we are probably dealing with a combination of syphilis and Vincent's, even when we fail to obtain a history of syphilis. That may be one reason why salvarsan acts so promptly in some cases, although the consensus of opinion would seem to prove that the arsenic preparations do have a specific action. He has known cases of this kind in which there was a positive Wassermann (with no syphilitic history), with the typical clinical and microscopic evidence of Vincent's.

DISCUSSION.

DR. CHRISTIAN R. HOLMES, Cincinnati: I should like to ask as to the temperature of the patients; whether blood cultures were made in the two severe cases, and how he used the alcohol treatment—by applying it locally or not. In Camp Sherman we had quite a run of Vincent's angina in the soldiers; but none of them was seriously ill. All were the kind of cases that yield readily to treatment.

The treatment was nitrate of silver bead applied in the crypts, using it on a heavy silver wire, the patients using gargles of permanganate of potash and peroxid of hydrogen. Gargling with vinegar diluted with equal parts of water was tried lately and appeared very effective.

DR. LEWIS A. COFFIN, New York City: We have had many papers on this subject. From these it is evident that patients have gotten well under various forms of treatment. It strikes me, therefore, that if these cases are seen early, recovery may be looked for, if any of the various methods be applied vigorously. The speaker referred to a case which he treated twice daily for about a week, when he told the patient that he was practically well and need not return for forty-eight hours. The same afternoon, after sitting out during a ball game, he was seized by a chill, which was the ushering-in symptom of a typical attack of follicular tonsillitis.

COL. HERBERT S. BIRKETT, M.D., Montreal, Canada: Perhaps there is no condition which is more prevalent than Vincent's angina among British troops. I seldom saw it in any of the

colonial troops, and this, I think, arises from the fact that the mouth conditions are very well cared for amongst the Canadians. The condition was found not only on the tonsils but also on the gums, even as far forward as the incisor teeth; it would seem as if this was due rather to direct infection. My experience with this condition is that it yielded rapidly to treatment, consisting of an application of hydrogen peroxid, liquor arsenicalis and vin ipecac.

DR. EMIL MAYER, New York City: It is relatively easy to make a diagnosis of Vincent's angina when there is an exudate and you can make a smear; but I saw some days ago an instance in which the diagnosis comes to me as a very great surprise. This was in the case of a lady who took good care of her teeth, and was a woman of much refinement. She consulted me on account of a spasmodic cough. She had a skin affection for which she was being treated. I saw a simple mild exudate on her soft palate, which I felt to be an evidence of the skin infection on her mucous membrane. I felt that she had a similar condition on her trachea, because of the negative result of all of the examinations. Her sputum was really more saliva than anything else; and I was intensely surprised at the report that it was full of the fusiform bacilli. There was an absence of anything like a membrane, yet the condition occurred, and in a person not neglectful of her teeth or anything else; so it probably occurs much more frequently than we really have a right to expect in this class of cases.

The treatment that has answered best for me has been the local application of salvarsan, together with the iodine and glycerin, which I recommended at the time the first case was reported by myself in the English literature. I have never seen the severe fatal cases. Arrow-smith reported a case in which the patient nearly died. I think that it behooves us to be on watch, because we may probably discover cases where we do not dream of them.

DR. GREENFIELD SLUDER, St. Louis: Dr. Theisen spoke of a solution of methylene blue in alcohol alone. I am glad to know that; but I have also used the methylene blue in powder and in aqueous solution, and likewise found it to answer the purpose.

DR. CLEMENT F. THEISEN, Albany, closing: Replying to Dr. Holmes' question regarding

blood cultures, I would say that we did not take blood cultures, but we took blood counts; and the leucocytes in both cases were increased. I forgot to mention the increase in the polynuclears, and also to mention a method of treatment—a combination of old drugs which is practically a specific, either as a gargle or in the spray form. This combination consists of potassium chlorate, powdered alum, glycerin and water. It works like a charm. The alcohol is used locally.

REPORT OF SOME CASES, MOSTLY TRAUMATIC, OF SERIOUS DAMAGE TO THE NOSE AND ACCESSORY SINUSES, OPERATED UPON EXTERNALLY, WITH EXCELLENT COSMETIC RESULTS.

JOHN R. WINSLOW, M.D., BALTIMORE.

The writer reports a number of cases of operative cure after serious injury to the face:

1. Extensive traumatism of the nose, face and frontal sinuses due to a fall from a height. Operative cure with exceptional result.

2. Frontal empyema with extensive bone necrosis and external fistula, operated upon externally in several sittings. Cure of condition, with excellent cosmetic result.

Several interesting points were presented by this case:

(a) Lack of intranasal pathologic conditions. A virulent infection (erysipelas?) seemed to have attacked the frontal sinus and uppermost portion of the bony framework of the nose without involvement of other nasal sinuses.

(b) The posterior (cerebral) sinus wall was denuded, but was hard and seemed devitalized rather than necrotic. It took a very long time for it to regenerate (twenty-six months), but his own judgment and the advice of colleagues was that it was better to delay than to assume the risk of removal.

(c) Marked anesthesia of the operative field, the packing being for a long time painless, doubtless due to the devitalized bone.

(d) Excellent cosmetic results.

3. Fracture of the external bony framework of the nose and the nasal septum by the kick of a mule, causing depression of the tip of the nose and great disfiguration. Restoration of appearance and function by operation.

4. Fracture of the right nasal bone and nasal process and a portion of the orbital process, by an iron rod; formation of sequestra and abscess, with secondary infection of the right

antrum. Operation and cure, with good cosmetic result. Photographs showing their excellent results were presented.

DISCUSSION.

DR. JOHN E. WINSLOW, Baltimore: I should like to hear from Dr. Coakley or some of the other experts, as to the proper plan of treatment under such conditions as I have described, where there is necrosis of the cerebral wall of the frontal sinus. How long are we justified, in waiting for nature to attend to it? Did I wait too long, or was I too conservative?

DR. CORNELIUS COAKLEY, New York City: When I have operated on the frontal sinus I have never found actual necrosis of the wall unless there had been syphilis. It is unusual for me to find such a condition. What I have found is that in cases that have been operated on previously, there has been a temporary cessation of the discharge with fistula formation. When I have opened up the frontal sinus in these cases it has not been infrequent to find areas of very marked softening in the bone, such as one finds in a mastoid operation at the border, when one has gotten back of where the large cells are and comes to the cells just between these and the cancellous bone. I think that there is no reason why that bone should not be regarded as infected bone, just as in the mastoid region; and I feel that neglect to clean out this diseased bone and get down to healthy bone, whether in the anterior wall or anywhere else, is not good surgery. You should get to good bone, even if you expose the dura in the frontal region.

In one instance I found such a degree of softening of the posterior wall that I felt sure that I should find exposure of the dura and epidural abscess. Fortunately, however, that was not the case. I went through an area of three-eighths of an inch of vascular soft bone before coming to what must have been a very thin area of good bone at the posterior wall of the frontal sinus. The soft bone was all cleared out. A drain was placed in the wound for a short time, leading to the nose. The wound was sewed up, as in the ordinary Killian operation, and the patient has made—temporarily at least—a good recovery. The operation was done three months ago, and up to the present time there has been no recurrence, although there were two or three before that. Soft or diseased bone, or any other bad bone in the frontal sinus, should be treated just as you

are in the habit of treating the same kind of bone in the mastoid or any other region.

DR. LEWIS A. COFFIN, New York City: I should be much less afraid of a curette than of leaving diseased bone in a patient. As to whether the posterior wall being necrotic and perforated is an invariable sign of syphilis, I have grave doubts. I have seen this condition in comparatively few cases; one case was in a child of six years having perfectly healthy parents. In reporting that case I spoke of another that I had previously seen in which the anterior wall was so soft that I removed it with a spoon curette, and stated that I did not see why the posterior wall should not be affected by the same pathologic process as the anterior wall. A case somewhat similar to the one just reported comes to mind. A young woman was riding in an automobile when the peculiar accident happened. The shaft of a wagon to which a horse was attached entered the antrum through the middle of her cheek, fracturing the floor of the orbit and the antero-nasal wall. She had been under treatment for some time when I saw her. Removing a pad of gauze from her face revealed a stream of pus pouring from the open wound in her cheek. I made an incision over the eyebrow down over the ridge of the nose and the center of the skin, covering the columellar cartilage and dividing the upper lip in the median line. Turning the flap well back gave a good exposure of all the diseased parts, which were thoroughly cleared out. We and our patients are fortunate in the kindly way in which incisions of the face heal. In this case there was practically no scarring except where the shaft of the wagon pierced the cheek.

DR. GEORGE L. RICHARDS, Fall River, Mass.: The ability of the face to heal is very remarkable. I recall that some years ago I had a patient who was riding a bicycle down a hillside when the chain broke, and he was pitched suddenly forward in such a way that he tore off the front of the face from the nose to the chin, and in addition got all the dirt of the street into his wounds. A number of operations were necessary, but in the end a fairly good-looking face resulted.

DR. T. PASSMORE BERENS, New York City: It seems to me that this is the same condition that we find in the mastoid of bone that is not syphilitic, but is simply an unusually firm, hard bone. We have to be patient, and let it heal.

A number of years ago I mentioned the mild pressure that was needed in these cases, such as would come from a pince nez with long horns pressing the nasal bones together. It seems to me that if he had exerted a slight constant pressure, such as you get from a pince nez, he would have overcome that broadening of the nose. I merely mention this to accentuate the benefit of constant mild pressure.

DR. BRYSON DELEVAN, New York City: In suppurative conditions of the nasal sinuses if there should be any question of the existence of syphilis, operative work must be undertaken with caution, since under antisiphilitic treatment many cases have been cured or have satisfactorily improved without operative interference. Many cases could be quoted to prove this. It may be said, therefore, that where there is a positive Wassermann reaction wait, if possible, until a course of specific treatment has either cured the sinus disease or made the necessity for operation clear.

DR. JOHN R. WINSLOW, Baltimore, closing: I do not want to leave anyone under the impression that I am ignorant enough to leave soft bone and close it in the wound. It was not soft, but hard as steel, and I curetted it three times as much as I thought was safe. I acted not only on my own best judgment, but also on the advice of several friends.

CARPET TACK IN THE RIGHT BRONCHIAL TUBE OF
A PATIENT FOR TWO YEARS WITH NO PATHOLOGIC
SYMPTOMS. EXHIBITION OF PLATES.

DUNBAR ROY, M.D., ATLANTA.

This occurred in a female aged twenty-eight years. X-ray showed the tack in the right bronchus between the seventh and eighth ribs. Its removal was at once attempted by upper bronchoscopy, and failed. Tracheotomy was performed the next day, the bronchoscope passed, but he was unable to grasp and dislodge the tack, and the tracheotomy wound allowed to heal.

Five months later a bronchoscope was easily introduced by upper bronchoscopy by Dr. R. C. Lynch. The tube was too short and the foreign body could not be removed.

The patient has been entirely well since then, now two years, increasing in weight. X-ray photographs were shown showing the tack still *in situ*.

The writer presents records of a number of cases of this character, many of them without producing untoward symptoms.

DISCUSSION.

DR. T. H. HALSTED, Syracuse: In connection with this case of Dr. Roy's, I should like to report the recent removal of a foreign body from the right bronchus occurring in a girl of ten years. This child, while playing, having occasion to put her pocket handkerchief to her mouth, inhaled a metal clip, shaped somewhat like a fish hook, which had been in her pocket. There was an immediate attack of dyspnea, lasting a few moments, but within a few minutes no symptoms, beyond a sensation as of something sharp lodged in the throat, remained. A physician saw her within ten minutes, at which time all symptoms had disappeared, beyond the pricking sensation. He assured her that she must either have expectorated or swallowed it. She had no trouble that night, but the next morning, the sticking sensation referred to the neck continuing, she consulted another physician, Dr. Swift, who had an x-ray made. This disclosed a foreign body in the right bronchus. She was referred to me for operation. Under general anesthesia I soon located the metallic object by upper bronchoscopy and made repeated but unsuccessful efforts at removal. The x-ray failed to tell whether the sharp point was directed up or down, and it could not be determined by direct inspection. The next morning stereoscopic plates were made, and showed the foreign body to be in the right bronchus, sharp point upward. Under ether, the trachea was opened, and under lower bronchoscopy the foreign body was, after two hours' work, removed. It was in the second division of the bronchus, firmly wedged, but by manipulation it was finally removed by a long alligator forceps with but little damage to the bronchioles. It was a flexible steel clip used in clothing stores for holding cardboard pricemarks, shaped like a sharply bent fish hook, the shaft being three-fourths of an inch long and the pin portion half an inch. It, together with the stereoscopic plates, are presented for examination. The tracheal wound was at once closed, the child made an uneventful recovery, leaving the hospital in eight days. It was the most difficult case of its kind I have met with.

(To be continued.)

Book Reviews.

Immune Sera. BY CHARLES BOLDUAN, M.D., and JOHN KOOPMAN, B.S. New York: John Wiley & Sons, Inc. 1917.

"Immune Sera" deals with certain antibodies which have aroused a great deal of scientific interest: Hemolysins, cytotoxins, precipitins, antitoxins, agglutinins and opsonins, snake venoms and their antisera, anaphylaxis and bacterial vaccines. The side-chain theory of Ehrlich and its heuristic value are discussed, and the points are given wherein he and other investigators differ. The purpose of the book is to present the main facts and theories concerning infection and immunity.

A Chemical Sign of Life. BY SHIRO TASHIRO. Chicago: The University of Chicago Press. 1917.

This volume presents a chemical method for testing vitality, for distinguishing living tissue from dead, and for measuring the quantity of life. The author applies to living processes in general the facts discovered by the study of nerve physiology; the basis of the functional changes of the nerve mechanism is chemical, and exists in all forms of living matter. Irritability is a sign of life, and can be measured by the increased metabolism which occurs on stimulation. The book includes a detailed method of using the biometer, a machine specially devised for testing the degree of vitality of a tissue by determining very minute amounts of carbon dioxide.

City Milk Supply. BY HORATIO NEWTON PARKER. New York: McGraw-Hill Book Co., Inc. 1917. First edition.

This volume offers valuable information about milk; how it is produced, transported and delivered, and what methods of control are adopted to insure its purity. The development of the milk business in the United States within the last 75 years shows progress, and an increased effort on the part of farmers, chemists, railroads, and health officers to cooperate in supplying the community with good milk. This book gives a detailed account of the chemical composition of milk and the stages of bacterial decomposition. Many diseases communicable by milk are enumerated. The various methods of control of tuberculosis are described: control by immunization, by tuberculin testing, or by the Manchester, Osterag, Bang, or Birmingham methods. One chapter is devoted to the dairy cattle and the dairy farmer in America; descriptions are given of various types of cows and barns and various systems of ventilation.

Among other problems with which the book deals are: the problem of sanitary production of milk, the sources of contamination and suggestions for minimizing milk infection; the problem of transportation, its sanitary and economic phases; the milk contractor and his relation to the consumer and the producer; the importance of the North system in the maintenance of country milk plants, and the general features of city milk plants; milk inspection and standardization, pasteurization, sterilization by electricity and ultraviolet rays; and the problems of bottling and distributing milk. The principles of modern milk control, by Federal, State or municipal agencies and by the contractor are discussed. The importance is emphasized of maintaining public interest in the milk supply, for it is chiefly by means of this cooperation that an abundant supply of inspected, pasteurized milk can be furnished to the community.

State Sanitation. BY GEORGE CHANDLER WHIPPLE. Cambridge: Harvard University Press. 1917. Volume I.

The object of "State Sanitation" is to describe the past work of the Massachusetts State Board of Health since its establishment in 1869, to bring to life portions of the older reports, and to show how the work of the State Board of Health has fulfilled the ideal set forth in the "Report of the Massachusetts Sanitary Commission of 1850."

Volume I has two parts. The first includes the history of the State Board of Health from the earliest beginnings of public health in Massachusetts—the first quarantine regulations, water supplies, sewers—to the present day. The State Board of Health was organized in 1869; its early work deals with such problems as intoxicating liquor, the control of the business of slaughtering, the sale of poisons, and the effect of improper housing on sickness and death among the poor. In 1879, the existing boards were combined into the State Board of Health, Lunacy, and Charity. Important work was done in 1882 and 1883 in the protection of foods and drugs and in the study of diseases. In 1886, the State Board of Health was again reorganized and numerous engineering enterprises were begun. The book includes detailed information regarding experiments in the antitoxin and vaccine laboratory, the protection of food supply and of the purity of inland waters, the Lawrence Experiment Station and the State House Water and Sewage Laboratories, later engineering work, and the cost and achievements of the State Board of Health.

Part 2 contains the "Report of the Massachusetts Sanitary Commission of 1850." It discusses the sanitary movement abroad and at home, a plan for a sanitary survey of the State and reasons for approving the plan recommended.

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THE WANING INFLUENZA EPIDEMIC.

WITH the bright, clear days of the past week, the influenza-pneumonia epidemic in the Eastern section has shown a gratifying decrease in the number of new cases as well as in the death rate.

But while conditions are improving here, the influenza now has spread to practically every part of the country. Reports to the public health service showed the disease is epidemic in many Western and Pacific coast states as well as in almost all regions east of the Mississippi river.

Its spread also continued in the army camps, the number of new cases reported being greater than on the day before.

Influenza is now epidemic at three places in Arizona, in Maryland, in many parts of Arkansas, in Louisiana, Missouri, Mississippi, Nebraska, North Carolina, North Dakota, Ohio,

South Dakota, Tennessee, Texas, Vermont, Washington, West Virginia and many other states. In Mississippi amusement places over the state have been ordered closed and public gatherings prohibited at Seattle, Bremerton, Pasco, Prosser, Sultan and Port Angeles, Wash.

The disease is reported from many parts of California, while in Texas the malady has been reported from 77 counties, with the number of cases varying from one to 4,000 in each county. A slight decrease is noted in the number of cases reported in Massachusetts, but in the District of Columbia the malady is spreading rapidly, more than 200 new cases being reported.

The epidemic continues in New Jersey and the Public Health Service announced that a physician has been placed in charge at Perth Amboy in coöperation with the State and local health authorities. He had been directed to make the necessary arrangements for giving medical and nursing assistance. Aid was especially needed at this point, it was said, because of the recent explosion, which has increased the danger of the spread of influenza, pneumonia and other communicable diseases.

New cases of influenza reported recently at army camps totalled 13,605, a slight increase over the preceding day. There also was an increase in pneumonia cases, with 2,842 reported. The 820 deaths made a total of 6,543 in the camps since the epidemic started last month.

Camp Funston, Kan., reported 1,430 new influenza cases, while Camp Custer, Mich., reported 1,000, and Camp Taylor, Ky., 607. The highest number of pneumonia cases, 370, was reported at Camp Meade, Md., while Camp Custer had 275 new cases and Camp Grant, Ill., 201.

So great has become the need for nurses and nurses' aids throughout the country that a special appeal for all possible volunteer aid has been issued by Surgeon General Rupert Blue of the United States Public Health Service. Volunteers are urged to register their names, addresses, qualifications for service, and earliest date of availability, at their local Red Cross Chapter or at the Red Cross Headquarters in Washington, D. C.

There is a growing demand for open-air

treatment, according to State Health Commissioner Dr. Eugene R. Kelley, and many applications have been made to the State authorities for assistance. The department has decided, after realizing the success attending the open air treatment applied by Dr. Walter A. Brooks at the Corey Hill, Brookline, camp, to build shacks in Lawrence, Ipswich and Haverhill, and at the Medfield State Asylum for the insane.

A report on the influenza situation in prisons was issued from the State Board of Health Wednesday, October 9. At the Massachusetts State prison, with 554 inmates and 76 officials, there have been 162 cases and two deaths. None of the cases is serious. In the Concord Reformatory, with a population of 520, of whom 365 are inmates, there have been 325 cases and four deaths, which is the largest proportion reported in any institution. At the Sherborn prison for women, with a population of 500, of whom 110 are on the administrative staff, and where there has been quarantine, there have been only three cases and no deaths.

At the institution for the feeble-minded at Waverley, with a population of 560, there were 20 deaths up to Friday.

Early in the week the members of the State Guard began breaking camp at the William A. Brooks Hospital Camp at Corey Hill, Brookline, where, since September 9, more than 300 cases of influenza among the men of the merchant marine fleet have been successfully treated by the open-air method. This colony has numbered as high as 200 tents, and within a day or so the number will be reduced to about 10, where the remaining convalescents will be kept until they have fully recovered and are ready to return to their ships.

Despite the many cases that have been treated there, the number of deaths has been surprisingly small. The open-air treatment, even during a week of severe rain storms almost every day, has proved highly efficacious, and the men have been sent back to their ships with renewed strength, due to the exercises they have undergone during their convalescence.

Arrangements have been made to ship the dismantled tents to other points, where the need of hospital facilities is apparent and calls have been made for open-air hospitals. It is probable these camps will be under the direction of the State Guard members, as was the camp at Brookline.

Boston has persevered in its battle against the grippe and the week has seen the continued closing of theatres, schools, churches, clubs, saloons and other places where public gatherings are wont to be held.

The municipal authorities, acting with Health Commissioner Dr. W. C. Woodward, conferred with the heads of transportation companies, labor organizations and representatives of the retail stores in efforts to relieve the congestion which daily menaces the public health of the thousands who work in the city and who must ride to and from their places of employment.

It was agreed to restrict the hours of business of all retail stores (except grocery stores and shops where food is sold) to the time between 10 a.m. and 6.15 p.m. In connection with the new closing order Dr. Woodward is reported to have said:

"One of the most serious causes of the spread of the present epidemic of grip is the congestion occurring at rush hours in railroad and subway stations, railroad trains, elevated trains and trolley cars.

"Stores and business offices, generally speaking, open about 9 o'clock and close about 5. The result is that between 8 and 9 o'clock in the morning and 5 and 7 o'clock at night there is tremendous congestion on public conveyances and at stations.

"In order to relieve this congestion and spread the traffic over a longer period with less congestion it has been deemed necessary to order retail department, dry goods, specialty, clothing and furniture stores and shops not to open before 10 a.m. and to close at 6.15 p.m. This means that not only should they close at 6.15 p.m., but that they should not close before that time.

"This regulation should bring the congestion caused by shopping at somewhat different hours from the congestion caused by business offices.

"In order to relieve congestion as fully as possible, all business offices within the city are strongly urged and requested to close until further notice at 4 p.m. It has not been thought practicable at present to issue an order to this effect, but if the request is not generally observed, such an order will probably be issued."

The reported death rate from September 14 to October 14 shows the rate of increase and decrease of the epidemic.

	INFLUENZA	PNEUMONIA	TOTAL
Sept. 14	9	12	21
Sept. 15	15	9	24
Sept. 16	23	5	28
Sept. 17	28	13	41
Sept. 18	30	15	45
Sept. 19	32	10	42
Sept. 20	44	10	54
Sept. 21	57	23	80
Sept. 22	44	19	63
Sept. 23	74	13	87
Sept. 24	81	28	109
Sept. 25	81	24	105
Sept. 26	123	33	156
Sept. 27	107	37	144
Sept. 28	128	24	152
Sept. 29	119	30	149
Sept. 30	142	29	171
Oct. 1	152	50	202
Oct. 2	135	40	175
Oct. 3	166	25	191
Oct. 4	154	29	183
Oct. 5	117	32	149
Oct. 6	153	37	190
Oct. 7	146	24	170
Oct. 8	123	27	150
Oct. 9	124	20	144
Oct. 10	96	28	124
Oct. 11	103	18	121
Oct. 12	94	27	121
Oct. 13	72	13	85
Oct. 14	94	25	119
Oct. 15	67	31	98
Oct. 16	57	14	71
Oct. 17	41	12	53
Oct. 18	44	16	60
Totals	3075	800	3875

Quincy has the best report of any city in the State. Only two new cases and two additional deaths have been announced. Conditions are so satisfactory in Quincy that the Maryland State hospital train has left that city for Baltimore.

Brockton also reports that it has influenza under control. Seven deaths and eighty-two cases were listed in the latest report. Brockton was one of the hardest-hit cities in New England. It was necessary virtually to quarantine parts of the city when the number of cases had reached the "peak" of the epidemic.

Camp Devens reports a return to virtually normal conditions. For October 14 only three deaths and no new cases were reported. The Liberty Theatre, Y. M. C. A. and K. of C. huts and other recreation centres re-opened Friday evening, and other entertainments have been planned to proceed as usual the coming week.

At present Fall River is one of the hardest hit cities in the State. It reported 688 cases October 14, as against 462 during the preceding 24-hour period. New Bedford and Taunton also are suffering acutely. The tenement houses in the mill cities are regarded as fertile fields

for the spread of the disease. Until this phase of the situation can be handled properly numerous new cases will continue to be recorded.

Lynn states that the situation there is brightening. A home is being established for the care of children whose parents are stricken. In the surrounding towns there are few new cases.

While the situation here in Massachusetts is brightening, reports come from Pennsylvania to the effect that that State is feeling the increase of the influenza to such an extent that it wants to have Massachusetts return the physicians and nurses which it has loaned to us. The nurses were returned October 10 and the physicians were also sent back. One feature of the Pennsylvania report is that the influenza has struck the miners in the coal region, which will have its effect upon the output of coal.

The State Department of Health is sending to the health department of every other State in the Union information about the course followed in Massachusetts, calling attention to the fact that the best treatment seems to be that with tents and with the open-air shacks. Fresh air and sunshine are the most helpful aids which the department has found in the treatment of the influenza and the Massachusetts department desires to help all the other States as much as possible.

REEDUCATION OF BELGIAN WAR CRIPPLES.

THE Red Cross Institute for Crippled and Disabled Men has issued for July 17, 1918, an interesting pamphlet entitled, "Provision for the Reeducation of Belgian War Cripples," by Gladys Gladding Whiteside. It describes methods employed for functional and vocational reeducation, and for the organization of schools and instruction in technical training.

For Belgian war cripples, reeducation is compulsory. In December, 1914, the Hospital Anglo-Belge was opened in Rouen. Later, annexes were organized at Orival and Saint-Aubin les Elbeuf, and in 1916, a new model hospital was built at Bon Secours. At these hospitals, the several curative methods included under the term "physiotherapy" are used. The machines do not allow the patient to remain passive, but are designed to demand active muscular effort. Thermotherapy—including hot air baths, hot water baths, and local air applications—is also made use of. Artificial limbs are made chiefly

by the mutilés themselves. There are two types of legs furnished—a leg of moulded leather similar to French models, and a leg of hollowed wood, called the American type. The dress arm is made of moulded leather with a rigid hand and articulated thumb, which can be exchanged for a hook or ring.

There are two schools for vocational training in Belgium—the “École nationale belge des mutilés de la guerre” at Port-Villez, and the “Dépôt des Invalides” at Sainte Adresse. Shops have also been organized in which men are taught to readapt themselves to work. The school at Port-Villez is supported by the Minister of War. One year after its establishment in 1915, 1200 men were being reëducated there. The school is composed of ninety-two wooden barracks of the type of portable field huts, with double walls and cement foundations. In addition, the school is furnished with a large meeting hall, officers’ quarters and an infirmary, a steam sawmill and joinery, garage and repair shops, stables, a poultry yard, and a large garden.

The work of the school is divided among three departments: the medical service, the academic department, and the department of technical training. The medical service provides functional reëducation for those who need it, by such means as exercising apparatus, electricity, heat, massage, curative gymnastics and fencing, games, and sports. This department also observes the effect of work upon physical condition and the influence of handicap upon efficiency. In addition, this division manufactures any special orthopedic or prosthetic appliances needed.

The academic department provides general schooling for men learning trades, theoretical instruction in the trades, and special courses designed for clerks. Men in the trades are divided into three groups—the illiterate, those who have had the rudiments of schooling, and men who have gone through grammar school. The theoretical instruction is the same for all the trades and includes the study of tools and machinery, of raw materials, the processes of the trade, how to determine the sale price of the articles made, and how to place them on sale. In the commercial school, there are four departments: a primary department, a department preparing for civil service positions, a commercial department, and a normal depart-

ment for the training of teachers. The courses are divided into two terms of six months each.

In the department of technical training, over forty trades are taught, the length of the course depending upon the natural aptitude of the men. The shops are operated for production as well as for training, but good teaching is never sacrificed for the sake of increasing production. Machine work in carpentry, hand carpentry and cabinet-making, pattern making for casters, toy-making, wood-carving, wood polishing, oxy-acetylene welding, automobile mechanics, plumbing and zinc-working, clock-making, electricity, shoemaking, tailoring, upholstery, basketry, typesetting, bookbinding, and brushmaking are among the trades taught.

The “Dépôt des Invalides” at Sainte-Adresse was founded by M. Schollaert, president of the Belgian House of Representatives, and arrangements were made for providing both functional and vocational reëducation. This school is organized in practically the same way as the one at Port-Villez, with a medical department, an academic department, and a technical department. At the end of 1916, 1699 men were present in the school.

The “home university” of Paris completes the system of vocational instruction organized by the Belgian Government for its disabled soldiers. Here they are boarded and lodged at the expense of the government while they pursue their studies in the great Paris schools.

Series 1, Number 16, issued for July 24, 1918, by the Red Cross Institute for Crippled and Disabled Men, offers a preliminary survey of the opportunities for the employment of disabled men. It describes the processes, working conditions, and advantages and disadvantages for cripples of various industries. National and local trade associations have been visited and trade journals have been asked to publish articles on training and employment. Thus far, 1203 kinds of work possible for leg cripples and 278 kinds for arm cripples have been found. 542 factories have been investigated since January 1, 1918. One of the most interesting results of the work of the survey has been the change in the attitude of the employer, who has now been educated to receive the cripple into industry.

In the piano industry, the processes which have been found to be most possible for cripples include air-brush varnishing, painting and filling, rubbing, doctoring, side gluing, cabinet

making, finishing, tuning, regulating, fine polishing, installation, making, cutting, boring, and wiring hammers, case making, sanding machines, gluing, and stringing. The advantages for cripples in this trade are: trade is not seasonal or dangerous; working conditions are good, and the machinery is not complicated; men can be taken into factories while learning; about one-third of the work, with slight adjustment, could be done by either arm or leg cripples. Disadvantages are: some of the work is heavy; small factories are impossible because each man must do such varied work.

Over fifty per cent. of the work in the leather industry can be done by cripples. Among the processes adaptable to cripples are: lining trays, cutting, riveting, nailing, pasting, mounting locks, coloring, making frames, pasting and stitching, punching, and turning. Wages in this work vary from \$9 to \$30 a week, working conditions are usually good, and the fire risk is not great.

The rubber industry affords many opportunities for disabled men. Processes most suitable include operating power sewing-machines, riveting machines, power cutters, and spreading and milling machines. Seam cementing, mixing rubber, molding valve seats, making belting, sullying vems, and vulcanizing are possible. Beginners receive from \$9 to \$12 a week, and skilled workers from \$30 to \$35. Ventilation and light are usually good, and employers will take men while they are learning. There are two chief disadvantages in this trade: (1) manufacturing mechanical rubber is heavy work for cripples, and (2) the hours are long.

The paper goods industry as a whole trade is an undesirable one for cripples, as the rolls of paper are very heavy and the machines in many branches are high-powered and dangerous. Employers are willing, however, to take crippled men wherever possible.

The shoe industry offers many opportunities, for there are three hundred different processes involved in it. From 50 per cent. to 75 per cent. of the work can be done seated. Possibilities for one-legged men include coloring, sewing machine operating, bench work, repairing, pasting, folding, bottom filling, lasting, cutting, and designing. For one-armed men, there is coloring edges, leather repairing, pasting edges, folding, leveling, bottom filling, last picking, packing, cutting, and designing. Wages vary greatly, from \$10 to \$45; hours are long;

light and ventilation are usually good; most of the machinery is not dangerous.

In the manufacture of sheet metal goods, there are few processes at which a one-armed man could work, but a one-legged man could be adapted to almost all the branches. Work in metal trades is not good for persons suffering from nervous strain, for there is a great deal of noise. It would be harmful, also, to anyone suffering from lung diseases or lung wounds, as there is a great deal of powdered metal in the air.

The silk industry is not recommended for cripples, for it consists chiefly of piece work, which entails haste and strain, and manufacturers object to taking on cripples for the material is very valuable.

The cigar-making trade offers good opportunities for handicapped men, for most of the operations are performed seated. There is not a chance for one-armed men, however, and eyesight must be unimpaired.

The candy industry promises to be a good trade for cripples after the war, for the following reasons: candy per capita is steadily increasing; wherever the sale of liquor is curtailed, the consumption of candy increases from fifteen to fifty per cent.; the chocolate ration of the soldier and sailor will establish a candy habit. Many places could be filled by men crippled in the legs, but none for those with crippled hands.

The celluloid industry is a good trade for cripples. A man without legs should not be in one of these factories on account of the danger of fire. There are, however, opportunities for both one-armed and one-legged men, much of the work is seated, and the work is light and easily learned.

The optical goods industry is a non-seasonal trade, the work is light and could be done by one-legged men, some of it by one-armed men. Wages are high, and a man could learn a good deal in six months. The principal drawback to placing cripples in this trade is that there are few large factories. Much of the work is standing, but it requires very little strength.

There are opportunities for men in every branch of the motion picture industry. Men with lung wounds or diseases ought not to be in small theatres because of the bad air, and many positions involve considerable eye strain. The industry is growing rapidly, and salaries are exceptionally high.

MEDICAL NOTES.

MEDICAL HISTORY OF THE WAR.—Colonel Champe C. McCulloch, Jr., M.C., U.S.A., Executive Officer of the Board for Collecting and Preparing Material for a Medical and Surgical History of American Participation in the European War, has arrived in France, to establish his administration for this purpose. During his absence, Lieut. Colonel Casey A. Wood, M.C., U.S.A., will be in charge of this work in the Surgeon General's Office."

A MEDIAEVAL MEDICAL AUTHOR.—In a recent issue of *The Lancet* appears the following item about a mediaeval medical author.

"John of Burgundy," surnamed, "A la Barbe," was a professor of medicine and a practitioner at Liège, and also the author of some medical books. Two treatises written by him in the latter part of the fourteenth century are mentioned. The first upon the plague and the second, in point of time of composition, upon the Corruption of Air as Cause of the Plague. The French originals are apparently lost, but a learned Jew, Benjamin C. Isaac of Carcassone, rendered the last treatise in Hebrew, and a copy of his work may be perused in Manuscript Bibliothèque Nationale, Paris, fonds Hebreu, No. 1191.

The other book may have been one in the library of Charles V. entitled "Le Traité que les Maistres de Medicare les Astronomies de Paris firent de la Pestelence, que fisique appelle Epydimme en l'An de N. S. 1368." The work translated by Benjamin was dated 1363 and translated about A.D. 1370. In it John of Burgundy speaks of his earlier book, which he says he wrote after the ravages of the plague.

APPOINTMENT OF DR. SWIFT.—Walter B. Swift, A.B., S.B., M.D., of Boston, has just been appointed Consultation Expert for Speech Defects to the Division of Medical Inspection of the Public Schools of Cleveland, Ohio. He is engaged in installing methods in speech correction by directing some 15 teachers to conduct speech correction classes. These teachers he trained last summer to do this work.

LONDON DEATH RATES IN AUGUST.—Statistics recently published show that the total death-

rate of London in August, 1918, was, only 10.1 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 12.5 in Finsbury, a central slum, and the low est was 5.7 in the city precincts.

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RAILROADS ARE REQUESTED TO CEASE RIVER POLLUTION.—The Merchants' Association has long been interested in protecting water supplies and water courses adjacent to railroad rights of way from contamination, and it has urged the installation of suitable sanitary devices.

The matter has been agitated by the Association through the Committee on Pollution and Sewerage, of which Mr. Edward Hatch, Jr., is Chairman, and has been brought to the special attention of the BOSTON MEDICAL AND SURGICAL JOURNAL by Mr. Hatch. The matter has been taken up with Director General McAdoo in a letter delivered to the Secretary in person. It follows in part: "We beg to ask your earnest and immediate consideration of a plan to provide the Pullman ears, passenger coaches, mail cars and railroad workmen's conveyances with sanitary devices to prevent the discharge of the contents of the toilets used on the trains upon the railroad thoroughfares of this country. The present method scatters the objectionable and dangerous material on and along the roadbed. As the railroad lines usually follow the course of a river or some other body of water, it becomes evident that there is great danger of pollution from the railroad. The material that is not thrown directly into the water, may be washed therein by rains, or blown in by the wind, or it may be fanned into mechanical suspension by the motion of the train and in this way enter the car windows, ventilators, dining cars and station dining-room or nearby houses, scattering broadcast the infected particles containing typhoid, tuberculosis and influenza bacteria. Also the bodies and clothes of the passengers are covered with dust and conveyed to the home, and the flies are important factors in the spreading of diseases.

In 1912 a bill was introduced in the New York Legislature to compel railroads traversing the State of New York to provide for the protection of the public health by prohibiting

the present form of water-closets on railroad trains. As most railroad vehicles are interstate carriers, it was deemed necessary to take legislative action by each individual state, and the coöperation of the respective governors sought with indifferent success, due probably to interstate complications.

Under your jurisdiction as Director General of the Railroads of the United States, the interstate boundaries, as related to railroads, are practically obliterated, and we believe under Federal control this reform on behalf of the public health could be instituted with few complications and little annoyance."

We are glad to ask the coöperation of all earnest, public-spirited citizens in this matter of such a fundamental and vital importance to the well-being of the people.

WAR NOTES.

APPOINTMENT OF GENERAL IRELAND.—Major General Merritte W. Ireland, U. S. Army Medical Corps, at present medical chief of staff with the American Expeditionary Force, has been nominated by President Wilson to be surgeon-general of the army for the period of four years beginning October 4, 1918, vice Major-General William C. Gorgas retired on October 5, on account of age.

Surgeon-General Gorgas is in Europe now with Secretary Baker, and it is reported that he will remain there as the medical representative of the United States army at the inter-allied war council.

General Gorgas, having earned a world-wide reputation as sanitarian when the Panama Canal zone was swept clear of the yellow fever and other plagues, will probably have a similar task in cleaning up the territory now being recaptured from the enemy.

Major General Noble will succeed to General Ireland's post in Europe.

Other nominations for temporary promotions included: Brigadiers general medical corps: Cols. James D. Glennan, John M. T. Finney, William S. Thayer.

Medical Directors Robert H. Kennedy and Albert N. D. McCormick of the Navy were nominated to the rank of rear admiral for temporary service.

PLANS FOR RECONSTRUCTION HOSPITALS.—Plans have been completed for the physical re-

construction of disabled soldiers in the general military hospitals. These plans are formulated with a view to close coöperation with the war department committee on education and special service in the work of restoring men to full or limited service.

The task of fitting men for service is at present the most pressing need. When play and work and study will help a man to get well, this kind of medicine will be prescribed.

Surgeon-General Gorgas has designated the following general military hospitals for the work of reconstruction:

Walter Reed General Hospital, Washington, D.C.; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia, N. J.; General Hospital, No. 6, Fort McPherson, Ga.; General Hospital, No. 7, Roland Park, Baltimore (for the blind); General Hospital, No. 8, Otisville, N. Y.; General Hospital, No. 4, Fort Porter, N. Y.; General Hospital, No. 9, Lakewood, N. J.; General Hospital, No. 11, Cape May, N. J.; General Hospital, No. 16, New Haven, Ct.; General Hospital, No. 17, Markleton, Pa.; Lettermann General Hospital, San Francisco, Cal.; United States Army Hospital, Fort Des Moines, Ia.; Plattsburg Hospital, Plattsburg, N. Y.; and General Hospital, Fort Bayard, N. M.

The policy of the hospitals is that no man shall be discharged until he has gained complete recovery, both physical and mental. Not only will the ordinary means employed in medicine and surgery be used, but also physical measures such as are employed under physiotherapy, active exercises, indoor and outdoor games. It is hoped that by these means the men will be restored to their maximum efficiency.

MAKING SURVEY OF NURSES.—According to an announcement made recently by the American Red Cross War Council, the American Red Cross is now making a nation wide survey of the country's nursing resources, the work in all the territories and insular possessions being done by women of the Fourteenth Division of the American Red Cross.

The survey, being made at the request of Secretary Baker and Surgeon-General Gorgas of the Army, is for the purpose of getting information regarding the number of nurses available for war service, without endangering

civilian needs. The necessity for such a survey is emphasized by the fact that in many communities there has been a great scarcity of nurses during the epidemic of Spanish influenza.

The survey is to include every class of nurse, as well as midwives and trained attendants, practical nurses, women who have taken American Red Cross nursing courses and also women of the foreign-speaking population who have had nursing experience. The necessary questionnaires are being distributed by American Red Cross workers.

L. A. FROTHINGHAM TELLS OF BASE HOSPITAL NO. 6 IN FRANCE.—Louis A. Frothingham, former lieutenant governor and a member of Gov. McCall's commission which went to France recently to investigate conditions among Massachusetts troops, spoke at Trinity Church about the conditions and location of Base Hospital No. 6 or the Massachusetts General Hospital Unit.

"Dr. O'Neil of the hospital," said he, "came aboard our boat early in the morning, told us where the hospital was and asked us if we would visit it that afternoon. We went in a taxicab. It is located some miles from a large city in a country where once the people were forced to walk on stilts to care for their stock or do farming work. The country reminded me of our own Cape Cod.

"On one part of the grounds, in which the hospital is located, stands a large chateau where the officers sleep and have their mess. The main hospital is about a quarter of a mile from it. At one time the main hospital was a French boarding school. The French government took it over for hospital purposes.

"When we arrived there were more buildings being erected with concrete floors and other sanitary features. The equipment which the unit took away with them has served to make them much more efficient and independent. There is nobody at the hospital who is doing a finer work than Chaplain Sherrill. He is the postmaster, the censor, letter writer and chaplain all in one. The hospital is conducted along strict military lines and we found no better organization during our travels.

"When we first visited it there were but few patients, but when we returned, three or four weeks later, the wounded were arriving fast.

It is located two days away from Somme and the fact that wounded were transferred so far speaks well of the regard the high commands held for the institution. The further fact that from time to time surgeons and men are called from it to the front to organize hospitals is a tribute to the efficiency of the organization. The hospital is a monument now, and will remain so to Massachusetts and the United States of America."

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Oct. 12, 1918, the number of deaths reported was 1285, against 231 last year, with a rate of 85.43, against 15.59 last year. There were 101 deaths under one year of age, against 26 last year.

The number of cases of principal reportable diseases were: diphtheria, 44; scarlet fever, 9; measles, 3; whooping cough, 19; typhoid fever, 2; tuberculosis, 32.

Included in the above were the following cases of non-residents: diphtheria, 10; measles, one.

Total deaths from these diseases were: diphtheria, 5; whooping cough, 10; typhoid fever, 1; tuberculosis, 25.

Included in the above were the following non-residents: diphtheria, 2; tuberculosis, 1.

Influenza cases, 1520; influenza deaths, 850.

Total deaths for week, 1285.

REMOVAL OF FISK HOSPITAL.—On October 14, 1918, the Fisk Hospital was moved to 5 Sparhawk St., Brighton District. The estate of Dr. Horace E. Marion, which is admirably adapted for this work, has been purchased.

HOSPITAL BEQUESTS.—The will of the late Frank E. Peabody of Boston whose real and personal property amounted to about \$2,500,000 gave \$10,000 to the Massachusetts General Hospital for the maintenance of free beds.

The will of the late Jason S. Bailey of Boston provides that almost his entire estate shall eventually go to public institutions. The Boston Nursery for Blind Babies is to receive \$1000, and one-fourth of the residuary income is bequeathed to the Children's Hospital.

APPOINTMENT OF DR. KAZANJIAN.—Dr. Varaztad H. Kazanjian of the first Harvard

Medical Unit that went to France, has been appointed Professor of Military Oral Surgery at the Harvard Dental School.

BRIGHTON OFFERS SEMINARY FOR HOSPITAL.—The Emergency Public Health Committee has accepted Cardinal O'Connell's offer of St. John's Seminary in Brighton and established a convalescent hospital for male patients there. Dr. Wm. H. Devine, ex-surgeon General of Massachusetts and now head of the Medical Department of Boston's Public Schools, has consented to become administrator of the new hospital. Patients have been received from the Massachusetts General Hospital, Carney Hospital, the Merrill School, Cambridge, the Homeopathic Hospital, and the Peter Bent Brigham Hospital.

The hospital has not only an ideal location for a convalescent home, but also ideal construction with its light and airy rooms, large corridors and fine kitchen facilities, all of which will insure a quick and better recovery for the sick.

There is enough accommodation for 100 patients. Up to Oct. 9, 30 patients were receiving treatment; thirty seminary theologians are acting as hospital orderlies and 17 public school nurses are aiding Supt. Devine and his staff of seven physicians.

The physicians assisting Dr. Devine are Dr. John Bossidy, resident physician; Dr. Joseph Cogan, Dr. Thomas Broderick of Jamaica Plain; Dr. Irving Sobotky of Boston; Dr. W. H. Robinson of Boston, and Dr. Solomon Rubin of Boston.

NOTES ON THE INFLUENZA EPIDEMIC.

Plymouth County reports made by various boards of health show that the influenza-pneumonia epidemic is on the wane in this locality. The Rockland health authorities reported only 23 new cases on October 6th, as compared with 30 two days previous. The number of new cases has decreased one-half. Dr. Smith sent here by the State Board of Health to supervise the anti-epidemic campaign, received word to report at once to Fort Oglethorpe, Ga., for service in the medical corps. There were no deaths in Bridgewater recently and a decrease in the number of cases was reported.

Newport, R. I., reports that the influenza situation both in this city and in the 2nd naval

district was more encouraging. In the city there were only two deaths with fewer new cases. There were two deaths in the naval district with but 16 new cases. Fort Adams reported one death, with no new cases.

At Camp Devens there were five deaths on October 7, four pneumonia cases and 22 of influenza. Relatives of the soldiers seriously ill remaining at camp dropped to 35 at the K of C. building and 31 at the Hostess House.

Fitchburg has closed all public places in order to diminish the number of new cases. The Associated Charities and the Visiting Nurses' Association, with prominent women, are assisting in caring for the sick. Canteens have been established to prepare nourishment for the sick and children whose mothers have been stricken with the disease. Through Dr. Francis A. Finnegan of the State Board of Health, three more nurses came to Fitchburg recently to assist in the care of the sick. Undertakers are unable to provide caskets, and special arrangements are being made at Fitchburg for their manufacture. Two emergency hospitals are filled and lately a refugee home for children was established in the old Cross mansion. It is equipped with 25 or more cots and blankets supplied by Camp Devens and is under the supervision of the Red Cross. October 12th reports from Fitchburg showed that the epidemic had broken out anew and that there were 15 deaths and 153 new cases in 24 hours.

Taunton reports a slight decrease in the number of new cases. At the Morton Hospital 30 cases are under treatment and there are 40 cases at the Emergency Hospital in the Broadway Congregational church. There is a great demand for volunteer workers. At the newly opened convalescent hospital, there are 11 cases. Volunteer workers have attended 50 cases and supplied 23 families with food.

In Fall River, more than 1,000 new cases of influenza have been reported since October 5. There have been 48 deaths.

Five deaths were reported in Chelsea, bringing the total death record from influenza up to 100, excluding deaths at the Naval and Marine Hospitals. The number of new cases showed a marked decrease.

At Ipswich there has been installed a 50-tent unit for the care of influenza and pneumonia cases at Cable Hospital, under the direction

of the Federal Government. It will be in charge of an army officer, with the medical supervision directed by the local Board of Health. There is a falling off of new cases in this vicinity.

In Brockton 51 deaths were reported on October 7, more than double the total of any previous two-day period. In a public statement the Board of Health declared that while the epidemic is not yet under control, it believes that there will be an improvement in the condition.

In Newburyport there were eight deaths from influenza and pneumonia on October 6 but the Board of Health declares that the general situation is improving. A diet kitchen has been opened at the Purchase Street school-house.

In Quincy the crisis is past, but the ban on all public meetings is still maintained. The three emergency hospitals had no deaths on October 8 and 15 patients were discharged from the hospital. The Maryland State Hospital train may leave Quincy for Maryland, where its services are needed. On October 7 there were three deaths at the Chubbuck Street Emergency Hospital and two in homes. There were only 57 patients in the latter hospital as compared with 180 when the epidemic was at its height.

Milford influenza conditions are getting decidedly better. There were only three new deaths, a third as many as the number contained in the previous report. Milford's total is now 80, and the high-water mark is believed to have been reached.

The Westfield State Guard went on patrol duty in different sections of the town on October 11, as a means of preventing further spread of the influenza. An increase in the number of cases was reported on October 11, making a total of 70 cases. The epidemic is at its height here and no relief is in sight. The Noble Hospital is crowded beyond capacity.

Worcester has 327 new cases and has been ordered to close all public places until further notice. According to reports, 1,196 cases have been reported since October 4. The great number of burials have caused the grave-diggers to announce that there will be no further funerals in the Swedish cemetery until the funerals already arranged for have been taken care of. The Street Railways Company has been seriously handicapped. Dr. Wm. C. Roland of

Indianapolis has been assigned to Worcester and will serve as night physician at the emergency hospital established on the fair grounds at Greendale. There are nearly 50 patients here. Owing to the epidemic, the Worcester County Teachers' Convention has been called off. October 10 reports show that the epidemic is under control.

In Attleboro there were 19 new cases on October 11 and four deaths from influenza. In North Attleboro the influenza seems to have been checked. The few cases reported in the last 24 hours seem to be of a mild nature.

In Lawrence, the influenza situation has improved decidedly during the last 24 hours, making the lowest number of cases reported since two weeks. On October 11 seven died from influenza and 18 from pneumonia. The military emergency hospital on Emery Hill, built to accommodate influenza and pneumonia patients, will probably serve as a receiving base for Methuen, Andover and North Andover cases also. About 200 more cots have been added to the equipment at the hospital. There were about 150 patients in the hospital Oct. 12. About 70 boys from the Essex County Training School were added to the hospital. On October 6 about 40 cases were reported by physicians and 223 cases yesterday. On October 7 11 deaths were reported and two from pneumonia.

The epidemic seems to have fallen off at Lynn, Swampscott, Marblehead, Nahant and other surrounding towns.

The Salvation Army is taking an active part in the local campaign. Already 350 cases have been turned over to visiting nurses of that organization by 11 doctors of the S. A. Dispensary. The Army has two corps of nurses working in the North, South and West Ends. Colonel Gifford of People's Palace, who has charge of the corps, asks donations of various kinds for the comfort of the sick.

Springfield has cancelled the State Conference of Charities to take place on October 30, on account of the epidemic.

Conditions in Athol seem slightly better. There are now seven patients in the Crescent Street Hospital. Three deaths and 15 new cases were reported on October 6, making a total of 730 cases. Eight patients were sent to the Emergency Hospital, making a total of 13 there. All public soda fountains and public meeting places were closed.

The epidemic has spread over South Africa. There were 140 burials in Maitland cemetery, 100 new cases in Johannesburg and 11 deaths there on October 6. In the mining districts the spread of the epidemic has been reduced through the agency of the hospitals from 30,000 to 20,000. Thousands of volunteers are assisting and thousands have been inoculated.

Henry B. Endicott has asked for more tents for use during the epidemic. The ambulances of Ambulance Co. No. 1 and the 1st Motor Hospital Unit have been distributed as follows: Corey Hill, 3; Brookline, 3; Gloucester, Lawrence, New Bedford, Brockton, Boston Fore River Shipbuilding Yards, 1st Naval District and Northeastern Army Department, 2 each. Lieut. Joshua B. Holden, who has had charge of the ambulances, has been on duty day and night since the epidemic started.

Selected members of the dental profession are organizing to combat the epidemic, by offering their services in connection with vaccine inoculation. Because the medical profession is so overworked, the dentists have offered their assistance. Dentists appointed under the Dental Hygiene Council are now working in connection with Dr. Leary's laboratory at Tufts Medical School, doing nearly all the inoculation and assisting in the preparation of the vaccine.

Camp Dix shows a decrease in the number of cases. Twenty-eight men succumbed and 85 new cases of pneumonia and 76 cases of influenza were reported. The total number is now 2,907 influenza cases and 1,151 pneumonia cases.

Durham, N. H., is taking all precautions to safeguard the public. Very few cases are in evidence now and classes in colleges and schools will be held outdoors wherever possible.

Manchester, N. H., reports that the situation remains about the same. The hospitals remain overcrowded and the ambulance service is in constant use.

Portsmouth, N. H., appropriates \$2,000 to fight the epidemic. There was no abatement in the number of deaths, 10 being reported in the Portsmouth zone and three in the Naval Hospital.

Nashua, N. H., reports seven deaths on October 8, making a total of 102. The total number is an increase over the previous day.

Major John Buckley, head of the Selective

Service Administration in Connecticut, has telegraphed the War Department that Dr. John T. Black, State Health Commissioner, has recommended that physical examinations of draftees be postponed for 10 days. The influenza has occupied the doctors to the exclusion of everything else. On October 5, 18 deaths occurred and new cases are being reported hourly.

The Connecticut valley shows improvement on the whole in the influenza situation. In Springfield, on October 11, 59 new cases and one death were reported, a somewhat smaller number than usual. A slow but steady decrease in the rate is apparent.

Manchester, N. H., has ordered the closing of all factories in the hope of stamping out the influenza. More than 5,000 employees of various establishments are sick.

While a continued decrease in the number of new cases of influenza in the army camps has been noted, the spread of the disease among the civilian population is still far from being checked in the City of Washington, on October 8th reports. Eleven thousand, seven hundred and fifty cases have been reported by all army camps as a total number of new cases, making a decrease. Camp Taylor, Ky., reported the largest number of cases, 1,044. Camp Funston, Kan., reported 927, and Camp Dodge, Ia., 996. Pneumonia showed the greatest increase at Camp Meade, Md., where 255 cases were reported. There were only 231 new cases at Camp Grant, Ill., and 160 at Camp Sherman, O. Camp Devens has a decrease. Camp Dix showed improvement, with only 29 pneumonia cases and 11 influenza cases. The total number of cases reported from all camps since the disease became epidemic last month now is placed at more than 182,000, while pneumonia cases total 19,283, and deaths 5,671. October 11th reports are not so favorable in Washington. There has been a decided increase in fatalities in the camps, making an increase of 128 per cent. during the last week. Washington civilian population is also greatly endangered, and an effort is being made by the Health Department of Washington to keep out civilian war workers as an aid in checking the epidemic.

The Clinical Congress of the American College of Surgeons, which was to have had its

meetings on October 20, in New York, has been abandoned on account of the epidemic.

Albany, N. Y., has closed all schools, theatres and public meeting places to stop the spread of the epidemic.

In New York City, on October 6, 2,073 cases of influenza were reported as against 2,067 the day before. There were 185 pneumonia cases and deaths from both diseases totalled 113. On Oct. 8 there were reported from this city 588 deaths out of 14,782 cases since September 18. There were 1,500 among the sailors. Dr. Copeland estimated that there are now about 8,000 in the city. A drastic measure, making it a misdemeanor to cough or sneeze in public, has been passed by the New York Board of Health. Penalty, \$500 or imprisonment.

Camp Upton, N. Y., on October 8, showed nine deaths, 127 new influenza cases and 44 new pneumonia cases.

At Annapolis Naval Academy there were two deaths and 50 cases of pneumonia. It is reported to be spreading here.

In Newport, R. I., there were, on October 7, 11 new cases and four deaths among the sailors of the 2nd Naval District, and two deaths among the civilian population. On October 9 there were 17 new cases in the 2nd Naval District. The epidemic seems to be subsiding. The Emergency Hospital has been closed because the epidemic has subsided to such an extent as to eliminate the institution from service.

Providence has 5,000 cases. The hospitals are crowded and churches have abandoned their services temporarily.

At Waltham the Storer-Paine Emergency Hospital has been opened to receive influenza patients.

Colonel Charles Hagadorn forbade publishing the names of influenza victims at Camp Grant. The death toll was 525 on October 7.

At Syracuse the epidemic is decreasing. There are about 10,000 cases in the city.

Camp Custer reports 60 deaths on October 11.

Kansas reports 1,103 cases of influenza in Topeka and a general spreading of the influenza throughout the State. Sixty counties have closing orders against public gatherings.

TRUESDALE HOSPITAL.—Dr. Ester M. Sundelof, roentgenologist at the Truesdale Hospital and

Clinic, Fall River, Mass., has returned to her work at Fall River after a summer spent as house officer and roentgenologist at St. Anthony's Hospital, one of Dr. Wilfred T. Grenfell's mission hospitals on the Labrador coast. Dr. Sundelof is substituting for Captain John H. Lindsey at the Truesdale Hospital and Clinic while he is in France.

The Massachusetts Medical Society.

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Vice-President, George P. Twitchell, 17½ Federal Street, Greenfield.

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1918-1919.

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ESSEX NORTH.—The quarterly meeting of the Essex North District Medical Society was held September 25 at Amesbury Club, where dinner was served. Two interesting papers were read. The first, by Lieutenant Colonel Fred B. Lund, M.D., of the Medical Corps, U.

S. A., of Boston, considered "The Present Needs of Our Country for Physicians;" the second, by Lieutenant Colonel Channing Frothingham, M.D., of the Medical Corps, U. S. A., of Boston, commanding officer of the base hospital at Camp Devens, Massachusetts, discussed "The Clinical Advantages of an Army Medical Officer."

The Censors will meet at Hotel Bartlett, Thursday, November 7, to examine candidates for fellowship.

S. FORREST BURNHAM, *Secretary*.

Obituary.

WILLIAM REGINALD CHIPMAN, M.D.

WILLIAM REGINALD CHIPMAN, M.D., died at his home in Chelsea, October 7, 1915, of heart disease.

Dr. Chipman was born in Kings County, Nova Scotia, May 30, 1849, took an A.B. from Kings College, N. S., in 1888, and an M.D. from Harvard Medical School in 1876. Then he went abroad and studied at the University of Geneva and at the Soho Hospital, London. On his return, he settled in Chelsea, when he engaged in general practice. He was a founder of the Tufts College Medical School, and was the first professor of surgery at that institution; later he held the same chair in the College of Physicians and Surgeons. He was on the staff of the Frost Hospital. A prominent Episcopalian, he was senior warden of St. Luke's church. He married Annie Stockwell Raddin, and had one son, Dr. Fred S. Raddin of Chelsea. His wife dying, he married Ella Stewart. She survives him. Dr. Chipman became a retired Fellow of the Massachusetts Medical Society in 1915.

ARMY AND NAVY MEDICAL CORPS.—Applicants for the Medical Corps of the Army should make application either to Capt. John T. Bottomley, 165 Beacon Street, Boston, or to Capt. Philip Kilroy, 61 Chestnut Street, Springfield. The examiners have application blanks, and will communicate all details as to membership in the Corps. Applicants for the Medical Corps of the Navy should apply to Capt. John M. Edgar, Naval Aid Department, Little Building, 80 Boylston Street, Boston. Captain Edgar has the application blanks, and will give full information as to the requirements and the physical examination.

Miscellany.**MASSACHUSETTS STATE COMMITTEE,
COUNCIL OF NATIONAL DEFENSE,
MEDICAL SECTION.**J. B. BLAKE, M.D., *Chairman.*W. L. BURRAGE, M.D., *Secretary and Treasurer.*

IN response to the postal card request for funds from physicians in Massachusetts who are not in the Government Service, the Massachusetts State Committee, Council of National Defense, Medical Section, hereby acknowledges additional subscriptions from the following physicians through October 7. The funds are for printing, postage, rent of typewriter and extra clerical assistance.

WALTER L. BURRAGE, M.D., *Treasurer.*

October 8, 1918.

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Forrest L. Leland, South Hadley Falls.
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George H. Monks, Boston.
Wendell P. Hudson, Watertown.
Frederick L. Good, Boston.
Hugh Williams, Boston.
George B. Cochran, Hudson.
M. W. Harrington, Indian Orchard.
Austen Fox Riggs, Stockbridge.
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Herbert B. McIntire, Cambridge.

William C. Farley, Lawrence.
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John R. Sennott, Cambridge.
Carl Mindlin, Haverhill.
J. F. Croston, Haverhill.
Atherton P. Mason, Fitchburg.
H. B. Boynton, West Townsend.
Mark H. Wentworth, Concord.
Morton Snow, Springfield.
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Chandler Robbins, Boston.
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A. E. Poole, Boston.
Florence F. Poole, Boston.
Edward A. Cunningham, Belmont.
Walter H. Rice, Boston.
Warren W. Marston, Newton.
Florence N. Robinson, Lawrence.
Theodore E. A. McCurdy, Boston.
James H. Stevens, Boston.
Samuel Edelstein, Boston.
Edward N. Libby, Boston.
Byron Stone, North Oxford.
F. L. McIntosh, Newton.
Edward J. Denning, South Boston.
Ernest B. Schallenbach, Chelsea.
Andreas Werner, Worcester.
P. J. Finnigan, Worcester.
Herbert H. Sawyer, Boston.
Zenas A. Leonard, Pittsfield.
W. S. Boardman, Boston.
Edward F. Guild, Chelsea.
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R. V. Baketel, Methuen.
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Alice E. Hunt, Holyoke.

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 Charles Hammond, Hanover.
 Edward Schön, Lynn.
 Justin E. Hayes, Northampton.
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 S. R. Carsley, Palmer.
 J. O. Beauchamp, Springfield.
 Arthur B. Coffin, Boston.
 Edwin E. Jack, Boston.
 Herbert Franklin, Framingham.
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 Harry F. Mansfield, Needham.
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 Sherman Perry, Tewksbury.
 Carl A. Allen, Holyoke.
 Donald J. MacLeary, Palmer.
 Charles E. Hills, Wellesley.
 George B. Sargent, Lawrence.
 Robert V. Sawin, Brimfield.
 Susan M. Coffin, Boston.
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 E. E. Bancroft, Wellesley.
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 Leonard B. Clark, Waverley.
 Daniel L. Hunt, Boston.
 W. L. Hallett, Brockton.
 Avedis D. Avedisyan, Roxbury.
 R. D. Hamilton, Newburyport.

A. L. MacMillan, Hanover.
 William Liebman, Boston.
 John J. Shaw, Plymouth.
 Miner H. A. Evans, Boston.
 Samuel E. Fletcher, Chicopee.
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 Anna H. P. Marsh, Danvers.
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 Leonard Wheeler, Worcester.
 W. H. Mitchell, Marion.
 Helen S. Parker, Brookline.
 G. A. Suffa, Boston.
 Carl C. McCorison, North Reading.
 E. P. Fuller, Lawrence.
 Frank B. Pierce, Haverhill.
 William M. Bodwell, Framingham.
 Charles Allen Porter, Boston.

VALUE OF INFLUENZA VACCINE.

FOLLOWING are copies of the official report made to Commissioner E. R. Kelley by the special committees which investigated the value of influenza vaccine as a preventive agent and as a treatment of this disease:

Dr. Eugene R. Kelley,
Commissioner of Health,
State House, Boston, Mass.

Sir:—

We beg to submit the following recommendations:

That the State encourage the distribution of influenza vaccine intended for prophylactic use, but in such manner as will secure scientific evidence of the possible value of the agent. The use of such vaccine is to be regarded as experimental.

That the State shall neither furnish nor endorse any vaccine at present in use for the treatment of influenza.

M. J. ROSENAU, *Chairman*,
G. W. MCCOY,
FREDERICK F. GAY,
Board of Scientific Investigation.
GEORGE C. WHIPPLE, *Chairman*,
WILLIAM H. DAVIS,
F. C. CRUM,
Board of Statistical Investigation.

October 7, 1918.

Dr. Eugene R. Kelley,
Commissioner of Health,
State Department of Health,
State House, Boston, Mass.

Sir:—

The Special Board for Scientific Investigation, appointed to consider the evidence available on the prophylactic and therapeutic use of vaccine against influenza, have reached the following conclusions:

1. The evidence at hand affords no trustworthy basis for regarding prophylactic vaccination against influenza as of value in preventing the spread of the disease, or of reducing its severity. The evidence from the present epidemic, though meagre, suggests that the incidence of the disease among the vaccinated is smaller than among the non-vaccinated. The Board, therefore, concludes that further experimental evidence should be collected.

2. The evidence at hand convinces the Board that the vaccines we have considered have no specific value in the treatment of influenza.

3. There is evidence that no unfavorable results have followed the use of the vaccines.

(Signed)

M. J. ROSENAU, *Chairman*.
FREDERICK P. GAY.
GEORGE W. MCCOY.

October 7, 1918.

Dr. Eugene R. Kelley,
State Commissioner of Health,
Boston, Mass.

Sir:—

The following conclusions have been reached by the Special Board of Statistical Investigation:

1. The weight of such statistical evidence as we have been able to accumulate indicates that the use of the influenza vaccine which we have investigated is without therapeutic benefit. Exceptional cases where apparent benefit has resulted from the use of the vaccine can be matched by other cases where similar recoveries have been made without vaccination.

2. The statistical evidence, as far as it goes, indicates a probability that the use of this influenza vaccine has some prophylactic value.

3. There is also some evidence to the effect that other methods of protection, such as open-air treatment and the use of proper masks, are effective in protecting exposed attendants and the use of vaccine should not be taken as an excuse for omitting such safeguards.

(Signed)

GEORGE C. WHIPPLE, *Chairman*.
WILLIAM H. DAVIS.
F. C. CRUM.

October 7, 1918.

Correspondence.

DRUG REGULATIONS.

New York, Sept. 25, 1918.

Mr. Editor:

In connection with the proposed legislation now before Congress, relating to the Harrison Drug Law which has been proved unconstitutional before the courts in some respects, I would like to ask your attention to the enclosed article on the subject of drug laws and the drug situation in New York State—the birthplace of this "movement." In this State a few medical men, on their own initiative and without support from the organized medical bodies or influential medical men, have fought these drug laws from the beginning. They are now, thanks to the courtesy of the lay press, which has given them a hearing, beginning to make their influence felt in matters of legislation of this character by their education of the public.

I also desire your attention to this matter in view of the recent decision of the Massachusetts courts in the case of *The Commonwealth vs. Noble* (May, 1918, N. E. 510), which is of supreme importance to medical men. It has long been an admitted fact that "justice" is not to be looked for under the regular processes of the law, the best that can be expected of its

machinery are decisions founded upon precedent—of which, in this case, there was none. In convicting a physician for giving a habitual user of morphine a prescription to procure his drug at a price of \$2.00, there should have been taken into consideration his moderation in charging so little for "pandering" to what is adjudicated, in Massachusetts, a "vice." In New York we passed a law compelling the Department of Health to permit morphine to addicts when necessary to save them from the unspeakable degradation which some of them testified before the Legislature they were compelled to undergo in the slums to obtain the drug. At the hearing there were present some of the judges who had passed sentence upon several of these addicts in the criminal courts.

At the meeting in Washington two years ago of the National Drug Manufacturers' Association, an Assistant District Attorney of Boston told how he succeeded in rounding up the druggists and doctors in his city by methods of procedure which he admitted were illegal and unlawful and which he would not have dared to use in the case of habitual criminals aware, as they are, of their legal rights. This violation of his oath of office he excused on the ground of its ultimate benefit to the drug users whom he "cured" by sending them to a corrective State institution officered by political appointees like himself. All this redounded to his credit politically and sociologically—which, in some localities, are now interchangeable terms.

JOHN P. DAVIN, M.D.

SOCIETY NOTICES.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.—To accord with the request of the health authorities, the October meeting of the Society will not be held.

DONALD GREGG, *Secretary*.

SUFFOLK DISTRICT MEDICAL SOCIETY AND BOSTON MEDICAL LIBRARY.—It has been decided, because of war time conditions, that during 1918-1919 there will be five meetings of the Suffolk District Medical Society and the Boston Medical Library, instead of seven as in preceding years.

Members are cordially invited to attend these meetings, which will be held at the Boston Medical Library, 8 The Fenway, at 8.15 P.M., on the dates given below.

It will be impossible to announce the subjects and speakers until shortly before the meetings. It is hoped that members will reserve these dates and attend these meetings.

October 30, 1918.—Stated meeting of the Suffolk Medical Society. Speaker: Dr. William C. Woodward, Boston Health Commissioner. Subject: "The Present Epidemic of Influenza." Discussion opened by Dr. Eugene R. Kelley, Massachusetts Commissioner of Health.

December 4, 1918.—Meeting of the Boston Medical Library.

January 15, 1918.—Meeting of the Medical Section, Suffolk District Medical Society.

March 5, 1919.—Meeting of the Surgical Section, Suffolk District Medical Society.

April 30, 1919.—Annual meeting of the Suffolk District Medical Society.

JOHN BAPST BLAKE, *President*, and GEORGE R. MINOT, 188 Marlborough Street, *Secretary*, Suffolk District Medical Society.

GEORGE W. W. BREWSTER, *Chairman*, and WYMAN WHITTEMORE, *Secretary*, Surgical Section.

EDWIN A. LOCKE, *Chairman*, and GEORGE R. MINOT, *Secretary*, Medical Section.

WILLIAM E. LADD, *Chairman*, Committee on Medical and Social Meetings, Boston Medical Library.

NORFOLK DISTRICT MEDICAL SOCIETY.—A stated meeting of the Society will be held at the Children's Hospital, Longwood Avenue, October 29, at 4.00 P.M. Phone, Brookline 5930.

Communications: Clinical Demonstrations.

Discussion of Matters of General Interest, by the Staff.

The Censors meet for the examination of candidates, Thursday, Nov. 7, 1918.

BRADFORD KENT, M.D., *Secretary*.

RECENT DEATHS.

CAPT. WALTER GRANDAGE, dental surgeon of the 73rd infantry, died recently at Littleton, Mass. He was a resident of Peabody.

DR. JOHN PERKINS, son of John T. Perkins, of Greenwich, Conn., died in the Presbyterian Hospital in New York on October 10, 1918, after contracting the disease while attending patients ill with influenza.

DR. CLARENCE FAHNESTOCK of New York, Major of the U. S. A., commanding the First Battalion of the 301st Infantry, died while in service in France. He was a graduate of Harvard in the Class of 1898, and was stationed for a time at Camp Devens.

DR. RALPH A. PARKER of Greene, Me., died at his home, on October 14, of heart disease. He was born in Greene 57 years ago and was graduated at Bates College in 1888, and from the Maine Medical School at Brunswick in 1904. He was a member of the Masons and the Grange.

DR. JOHN JOSEPH HASSETT, a Fellow of the Massachusetts Medical Society, died at his home in Lee, Oct. 11, 1918, aged 56. He was born in Stafford Springs and educated in Monson, and at the University of the City of New York, where he took his M.D. in 1887. In that year he married Catherine Brennan of Monson. She and two daughters survive him.

DR. WILLIAM R. CHIPMAN, one of the founders of Tufts College Medical School, died at his home in Chelsea, Mass., of heart disease. He was born in Cornwallis, N. S., 69 years ago. He was graduated from King's College Medical School, Windsor, N. S., and from Harvard Medical School. He studied also at Guy's Hospital, London, and at the University of Geneva.

DR. CLARENCE C. DAY died at his home in Newburyport, of pneumonia following an attack of influenza. He was born at Newton, N. H., and was graduated from Dartmouth Medical School in 1891, and, after practising a year at Newton, N. H., came to Newburyport. He was one of the medical staff of the Anna Jacques Hospital, and a member of the Massachusetts Medical Society, Essex North Medical Society and the Newburyport Medical Club.

DR. EDWARD H. WISWALL of Wellesley, Mass., a specialist on nervous diseases, died recently at the sanitarium on Grove Street, Wellesley, which he had conducted for many years. He was born in Boston, Dec. 21, 1862, and later attended Oberlin College, Harvard Medical School and Boston University Medical School, having been graduated from the last-named institution in 1887. For five years after completing his college education he was an assistant at the Westborough State Hospital. Returning from a year's study in Germany, he founded a sanitarium in Newton and, soon after, the Wellesley institution. He was a member of the town medical board, the Homeopathic Medical Society, the American Institute of Homeopathy, and the Maugus Club of Wellesley. He was Chairman of the Wellesley School Committee for ten years and one of the best known residents of the town.

The Boston Medical and Surgical Journal

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FATIGUE AS A CONTRIBUTORY CAUSE OF PNEUMONIA.

BY WILLIAM N. COWLES, M.D., BOSTON.

GROTON SCHOOL is a boys' boarding school, at Groton, Massachusetts. Plain living, strict discipline and great attention to athletic development and competition distinguish the school.

The school population, during the years 1906-12, consisted of 150 boys, about twenty masters and a large force of employees. The housing, heating, ventilating and sanitary arrangements are excellent. The boys eat in a common dining hall and sleep in dormitories, with open cubicles. The masters share the dining-room and some of them the dormitories with the boys. Masters and boys mingle in all the school activities, and come regularly in contact with many of the employees.

The health of the school population was good, with the single exception of an unusual number of cases of pneumonia among the boys, both before and during the earlier years of my connection with the school.

There were occasional epidemics of measles, mumps, whooping-cough, etc. Waves of "colds" or "grip," resembling influenza, attacked the community, and school population, with con-

siderable regularity, bringing boys to the infirmary with moderate fever, coryza, tracheal cough and an occasional otitis media.

The cases of pneumonia were mostly coincident with the occurrence of this milder respiratory infection.

In the school year 1906-7, there were seven cases of pneumonia; in 1907-8 and 1908-9 about the same number each year (twenty cases in three years). During this time, there was no pneumonia among the masters; only one case among the members of the masters' families, and that one followed etherization for a middle ear operation. There was none among the employees and no more than usual among the townspeople; none among the pupils of the Groton or Ayer high schools, each but two miles away.

Why should these boys, admitted to the school only in good health at an age (12 to 20 years) when serious sickness is rare, favored by excellent living conditions and regular athletic training in gymnasium work and outdoor sports, have pneumonia year after year, while the masters and their families, under no better conditions, and the employees, apparently less favored, were free from it; while the boys and girls of Groton and Ayer high schools, near by, of the same age, many of them from families of small means, comparatively poorly housed

and fed, with less regular habits and little athletic or physical training, did not have it; and the amount of pneumonia among the people roundabout was only trivial?

During these years, this question received much fruitless attention until the following occurrence suggested a solution: A boy who had been in the infirmary with fever, coryza and a cough, went out convalescent, took a long cross-country run, came in tired and quickly developed pneumonia. This suggested fatigue in this and other cases. It also suggests the possibility of inspiration of infectious material in addition to fatigue, as of course boys exercising violently and long, breathe violently and deeply.

It was afterwards noticed that boys discharged from the infirmary after respiratory infections, frequently returned with a recurrence, sometimes aggravated, after being tired by some athletic task or sport.

Examination of the infirmary records showed that in several instances boys had been discharged from the infirmary after respiratory infections and returned soon after with pneumonia. This happened among boys taught to disdain weakness and trivial ailments and to admire athletic excellence, suggesting that athletic zeal throughout the school by inducing excessive fatigue among boys when out of condition, had been the cause of pneumonia.

Beginning in 1909, boys were kept longer in the infirmary, severe exercise was forbidden while they were soft from even slight sickness, and athletic work was resumed gradually. In that year, there was one case of pneumonia; in 1910-11 and 1911-12 there was none.

Dr. Kilbourne, the school physician for the last six years, states that there has been only one case of pneumonia in the school in that time, and that case followed great fatigue from rowing and running.

In the 1906-7 year, when pneumonia was going in the school, there were 32 cases of measles among the boys. Those boys certainly carried other infections, as eight of them (twenty-five per cent.) had otitis media, requiring incision and drainage, and one had acute endocarditis, leaving a permanently damaged heart. They were kept quiet and out of school and sports until completely recovered. None of them had pneumonia.

The kind of fatigue observed as a cause of pneumonia at Groton, is an acute fatigue, due

to violent exercise like rowing or running in competitive sports and not mere weariness from everyday activities. The observed instances in which acute fatigue was followed by pneumonia were in boys already subject to, or convalescent from, mild respiratory infections and presumably easily tired.

That acute fatigue was a contributing cause of pneumonia at Groton, seems more than suggested. Pneumonia was confined to boys given to athletic tasks and sports. Between four and five per cent. of them had it each year for three years. It came to an end when boys ailing or convalescent were shielded from fatigue. The persons associated with the boys in the school and the high school pupils, near by, limiting themselves to everyday activities, did not have pneumonia.

Descriptions of pneumonia at army camps last winter suggest a strong resemblance between the conditions in them and at Groton School. Great numbers of young men were assembled and probably as well clothed, housed and fed in essentials as the boys at Groton. Epidemics of measles and a variety of more or less mild respiratory infections spread among them. Strenuous military training provided the conditions for inducing acute fatigue among those soft from mild ailments, convalescents from measles, etc. Many cases of pneumonia followed, but with a rate in proportion to the camp population no higher than at Groton School.

In the reports I have seen of pneumonia in the army camps, fatigue is occasionally mentioned as a possible contributing cause, but the opportunity to estimate its influence appears to have been lacking.

At Groton School, there was something like an experiment in the production of pneumonia by acute fatigue, with control groups, and time to work itself out.

If this experiment proves or suggests anything it suggests the operation of the same contributing cause of pneumonia in army camps and elsewhere, and that the disease may be lessened by similar measures against acute fatigue in persons out of condition.

TWO INFECTIONS CAUSED BY A SINGLE CARRIER.

By D. M. LEWIS, M.D., NEW HAVEN, CONN.

IN a recent article I showed that there was rarely to be found a carrier who, a straight

streptococcus carrier when found, later showed the diphtheria organism when the anterior nares was well cleared of the former organism or the reverse. In that during four and one half years of field work I have never previously been able to demonstrate that such a carrier actually gave rise to each infection in two different individuals, and that both such infections were single, the following carrier is worthy of report.

On August 2, 1918, I was asked to see a family resident of this city who feared from previous contact, infection with diphtheria. On entering the house of the family, I was followed by two children, the older of whom showed a right nares filled with a sero-purulent material. The history given by the mother was that for the previous six weeks the family of four children, with one of their cousins from New York city, had been at a neighboring shore resort. The cousin, E. B., female, age 8, had been sent to the Isolation Hospital on July 25 as a case of diphtheria, and within the immediately following few days the next to the oldest of the four children had been sent as a suspected case. Four cultures from the latter had been taken, all of which did not show that this girl of 16 had the disease. Fearful that the youngest member of the family, a boy, or the next older sister might take the disease, they asked an investigation. The older girl, and the boy mentioned, aged 6, showed nothing. The girl mentioned, S. W., aged 8, had had a cold for the previous three weeks, with occasional bleeding. Cultures from the right nares showed both K-L. and the streptococcus. The mother was advised at the time that this individual was a carrier and to allow no further contact with the others of the family, although they had already been possibly exposed. On August 5, the older sister was discharged from the hospital and I took cultures from her throat. A similar gram-positive streptococcus to that of the carrier was demonstrable. The following day I was asked by this girl what I had found. Telling her that she would not understand the term but that it was not diphtheria, she stated that she had heard the attending physician frequently mention what kind of a sore throat she had and confirmed the word streptococcus as being the one used.

As the head cold of the carrier had antedated

the two cases by at least two weeks, the gender of the three individuals and their ages are of interest as being the usual sequence; the cousin, of a similar age and more susceptible to diphtheria than the older sisters and as the more intimate playmate, was a natural first case. The older sister as a more intimate contact than the younger brother and less susceptible to diphtheria was, in turn, exposed. Had the family been quarantined with the case at home, the younger brother would then have become a playmate and as a closer contact would have, if the general rule holds, become a secondary case of diphtheria.

The value of interpreting cultures in terms of all that they contain is shown in the instance given. In the only other instance which I have seen published there were apparently two different carriers for the two different infections, and the lack of diagnosis other than negative diphtheria is an excellent illustration of what may happen. In the *Journal A. M. A.* for July 7, 1917, under clinical notes, was given a case of wound diphtheria, complicated by rheumatic fever. Of three brothers, one age 8, had nasal excoriations and K-L on culture, the condition having been present for one month. A brother, age 5, had a wound area covered by a membrane which showed K-L. Antitoxin was given to the latter boy with an immunizing dose to the former. A third brother, age 10, at the time, was found to have a temperature of 103.5, inflammation of the nose, many punctate spots on the tonsils and enlarged and painful glands in the neck. A culture from his throat proved negative. One week later the boy with the wound diphtheria who had recovered in two days, had a temperature of 103.6, pains in both knees and the right ankle and a red throat which on the following day showed tonsils covered with loose exudate. There would be but little question that the brother, age 8, was the diphtheria carrier, and that the brother, age 10, both from the clinical history and the negative culture, had a streptococcus nose with the sore throat, infecting later the boy, age 5, who then became a case of rheumatic fever.

My contention that when board of health standard method for the diagnosis of diphtheria in terms of negative or positive is replaced or reinforced by those who must use a Loeffler stain, with a Gram stain and the diagnosis of

positive for any and all apparent pathogenic organisms, clinicians will gain the true value of the laboratory aid and have obscure infections explained is again illustrated by these cases. To the epidemiologist as a health officer it is a prime essential.

Selected Papers.

RADIUMTHERAPY IN HYPERTHYROIDISM WITH OBSERVATIONS ON THE ENDOCRINOUS SYSTEM.*

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PART I.

DURING recent years the increasing use of radiumtherapy in the treatment of pathological conditions of the thyroid gland has given the writer an opportunity to make certain interesting observations on the thyroid itself, and also on its relationship towards other members of the endocrinous system.

The use of radium has been directed more particularly towards pathological increases of function than towards simple enlargement of the gland. The extension of radiumtherapy into this field was first brought about by Dr. Robert Abbe, of New York, in 1905, who, by burying radium tubes in the gland itself, in a case of exophthalmic goitre, caused shrinking of the mass and cessation of the symptoms of thyroidism.

Tentatively the writer has treated one or two cases of hyperthyroidism some seven or eight years ago with clinical improvement. The permanence of the result obtained in these patients justified one in advocating radiumtherapy for such functional disturbances of the thyroid. In all, 45 cases have been under treatment, the majority during the past three years. Of these 23 have been clinically cured—that is, the tachycardia, tremor, and restlessness have disappeared, and symptoms of excessive thyroid secretion have abated. In 17 cases there has been an improvement, but not a complete cessation of symptoms. Four cases have passed observation. In only 19 patients did

the thyroid gland itself decrease in size, as evidenced by neck measurement, while in six there was no diminution in the size of the gland, although the nervous symptoms were completely relieved. In three cases thyroidectomy had been performed, but the nervous symptoms had not diminished. This was, however, effected by radiumtherapy.

In connection with the treatment of these cases, it must not be overlooked that general medical measures were carried out as well. In some cases complete bodily and mental rest, in others partial, was established. A low protein diet and one poor in extractives was devised, while the internal administration of quinine hydrobromate grs. 5 t.i.d., together with ergotin gr. 1, t.i.d., was prescribed. In a large number of these cases all these usual medical measures had failed to relieve the symptoms, and it was only when radiumtherapy was added as a therapeutic measure that the hyperthyroidism was lessened.

It is to be noted also that it was only in a percentage of cases that there was decrease in the size of the gland. Surgical measures would be necessary in many to effect this, and yet the nervous condition was such that surgery was a very risky procedure. The relief of the nervous symptoms made it possible to undertake the surgical removal of the goitre for cosmetic reasons later on if the patient wished it.

The occurrence of exophthalmic goitre following the removal of the ovaries in two of three cases under observation interested the writer in the inter-relationship existing among the organs of internal secretion. These cases may be cited in detail.

Illustrative Cases.—Blair Bell reports two cases which are extremely interesting from the point of view of the subject we have under consideration. In one of them, a woman of 46, double oöphorectomy was done for malignant disease. For the first two months after the operation the patient did well, but then the symptoms of exophthalmic goitre developed, and she died from it within a year of the operation. The second case was that of a woman of 25, who had been perfectly well until the birth of her first child, eleven months before she came under observation. Menstruation did not recur, and all the typical symptoms of exophthalmic goitre developed. In this case the uterus was found to be in a state of super-

* Read at the meeting of the American Radium Society, Chicago, June 10, 1918, and reprinted from the *Medical Press*, Aug. 21, 1918.

involution, its length being less than two inches. The pathology of super-involution is still somewhat obscure. He thinks it probable that deficiency of ovarian secretion may play a part in some cases, but that at the same time secretory disturbances of the other ductless glands may lead to a similar condition. The following are details of two cases which have come under my observation:—

CASE 1.—Mrs. K., 35 years of age, who was referred to me in February, 1914, by Dr. Smith, of North Bay. In May, 1913, double oöphorectomy was done for a chronic inflammatory condition. In the following November symptoms of hyperthyroidism appeared, gradually increasing in severity. She was treated by prolonged rest, the internal administration of quinine hydrobromate, and all the usual medical measures. When I first saw her in February, 1914, there was only slight enlargement of the thyroid, but the pulse rate was 140, and there was marked nervousness and tremor. The treatment was then supplemented by irradiation of the area of the thyroid gland by means of screened plaques of radium. Two weeks later the pulse rate had gone down to 75, nervousness and tremor were less marked, and she was resting well. Further radium treatment was given a month later. There was constant improvement in the symptoms, and she gradually became able to take more exercise and to do light work without distress. She has now resumed her normal life, and has been quite well ever since.

CASE 2.—Mrs. W. This lady had a pan-hysterectomy performed in August, 1915, for carcinoma of the uterus. A year later she manifested symptoms of hyperthyroidism. She became very nervous and excitable, the thyroid increased in size, the eyes became prominent, and the patient was very much emaciated. The pulse was very erratic, going up to 140 on the slightest exertion. Rest, together with the administration of bromides, and quinine hydrobromate, the constant application of an ice bag over the heart, and the radiation of the thyroid gland at intervals, have resulted in most marked and gratifying improvement. The pulse has become steady and quiet, the nervousness, tremor, and exophthalmos almost completely disappeared, while she has gained in weight, and is now able to perform her ordinary duties.

In the Report of the Manchester and District Radium Institute Dr. Burrows reports seven cases of exophthalmic goitre, all of which are improved by radium. In a subsequent report, published in May, 1917, he says that of a total number of 40 cases 21 were considerably improved, but that in most of these cases sufficient time had not elapsed to estimate the permanent results.

Drs. Gaston Torrance, Gewin and Weed, of Birmingham, Alabama, report a case in which tachycardia rapidly subsided, the thyroid diminished in size, and nervousness disappeared. Dr. Lee, of Rochester, also reports a successful case, and says that, although exophthalmic goitre, with involvement of the thymus, does not respond to radium so well as to operation, radium brings about great improvement.

Dr. Dawson Turner reports the case of a woman at 69, who has suffered for two years from severe exophthalmic goitre with tachycardia up to and above 170. After other measures, including the X-rays, had been tried in vain, radium brought about rapid improvement, which was maintained.

The idea of a certain functional correlation and inter-relationship between different organs and different parts of the body is not by any means new, but within the last two or three decades this theory has undergone a considerable amount of development, more especially in regard to the relationship which exists between those organs which are known as the ductless glands or the organs of internal secretion. In spite of the fact that recent investigations, both experimental and clinical, particularly those of Biedl and Blair Bell, have added considerably to our knowledge in this respect, the exact character of this relationship still remains more or less obscure.

Internal secretions were first described by Brown-Séquard at a meeting of the Société de Biologie at Paris in 1889, who showed experimentally that, in addition to nervous inter-communication between the different organs of the body, a process of internal secretion, in the nature of a chemical interchange between certain organs, is constantly going on. This theory has since been elaborated by several writers, including Bayliss and Starling, Biedl, and Blair Bell.

To the ductless glands or organs of internal secretion, which are generally assumed to in-

clude the thyroid, thymus, pituitary gland or hypophysis cerebri, the suprarenals, the pineal gland and ovaries, Schafer has given the name of the endocrinous glandular system. He describes an endocrinous gland as one which is known to form within its cells some specific chemical substance which is passed directly or indirectly into the blood stream, thus forming the active material of its secretion, in the same way that ptyalin is the active agent of the salivary gland. The endocrinous glands differ from the salivary glands, however, in that their secretion remains within the body, circulating with the blood, whereas that of the salivary glands passes by way of a duct to the exterior of the body, and is excreted.

The results of the investigations of Biedl and Blair Bell indicate that the individual members of this glandular system are very intimately connected with one another, and that this relationship is dependent on a chemical interchange of their specific secretions, which is accomplished by the intermediation of the blood stream. They indicate further that this interdependence tends to keep the body as a whole in a condition of equilibrium. It is, therefore, reasonable to suppose that the removal of any one of these organs, or the cessation of its secretion, would be likely to have a more or less deleterious effect upon the others, and tend to upset the equilibrium of the body generally. Blair Bell's observations conclusively prove that this supposition is founded on fact.

Hormones.—Biedl assumes that the chemical correlation is brought about by means of the active principles of the secretions, which serve as intermediaries between the different organs. Sir Edwin Schafer states that the results of his research indicate that the action of the active principles of the internal secretions is not unlike that of the active principles of drugs, which also operate by direct action on the parts to which they are conveyed by the circulating blood.

The active principles of the endocrinous glands also resemble drugs, in that extracts of some of them tend to stimulate or excite the cellular functions, while others depress or inhibit them. An example of the latter effect is that of injection of extract of placenta, which tends to inhibit the secretion of milk.

The term *hormone*, which is derived from a Greek word meaning to excite or stimulate,

was originally applied by Bayliss and Starling to stimulating active principles, such as that contained in extract of duodenum after treatment by acid, and its significance has since been extended to include the active principles of all internal secretions. Biedl and Schafer point out, however, that there are two different groups of hormones. Biedl describes these two groups as assimilatory and disassimilatory, the first group conducing to the building up of living tissue, while the second favors its decomposition. Schafer describes them as stimulating principles and depressing or inhibiting principles, in that, while some of them stimulate function, others depress or inhibit it. Schafer emphasizes the advisability of discriminating between these two groups of active principles, and limiting the term *hormone* to those which have a stimulating action. For the depressing or inhibiting agents he suggests the use of the Greek word *chalone*, which is derived from a Greek word meaning to make slack. He defines a *chalone* as an endocrinous secretion, tending to inhibit or prevent activity of an organ or tissue, and a *hormone*, on the other hand, as a secretion which excites or stimulates an organ or tissue to increased activity. Biedl is of opinion that the increased functional activity of organs of internal secretion, which may follow the suppression of any one secretion, is to be regarded as a symptom of the disassimilation due to this suppression.

Frequency of Goitre in Women.—The much greater frequency of exophthalmic and other forms of goitre in women, as shown by a remarkable unanimity in the statistics to this effect, definitely indicates the close connection which exists between the thyroid and the genital organs, and the influence of ovarian secretion on the thyroid. This intimate relationship is also obvious from the fact that the manifestations of exophthalmic goitre frequently make their appearance or are aggravated at critical periods in development, such as puberty, during menstruation, and at and after the menopause.

As regards comparative frequency in the sexes, the returns of the Registrar-General show that during the four years (1911 to 1914) there were in England and Wales 1,613 deaths from exophthalmic goitre, 1,558 of them being women and 155 men, or a proportion of no less than ten to one. Hector Mackenzie has col-

lected 438 cases, 393 being women and 45 men, a proportion of nine to one. In six of his cases the condition followed a prolonged and difficult confinement. Dr. Helen Gurney has made an analysis of 93 cases of exophthalmic goitre, 92.5 per cent. of which were in women. Von Graefe states that his cases were six to one, Trousseau that his were fifty to eight, Henoeh that his were twenty-three to four, and Praele that his were twenty-one to one. Mr. James Berry, who has had considerable experience in the treatment of exophthalmic goitre, states that in his experience goitre was eight times as common in women as in men. Of 103 cases which he operated upon during 1913 eleven only were in men. In this connection Mr. Berry makes a rather interesting statement. He says that his patients with exophthalmic goitre are very seldom women who have married at an early age and had children. They are, as a rule, either unmarried women, widows, or women who are separated from their husbands, or women who are, in some way or other, not leading a normal sexual life.

Influence of the Thyroid Gland on Menstruation and Puberty.—The secretion of the thyroid may be either insufficient or excessive. If it is insufficient puberty may be delayed, or may be followed by secondary amenorrhea or scanty menstruation associated with dysmenorrhea. Blair Bell's researches indicate that if thyroid secretion is deficient menstruation is either scanty or absent altogether. The influence of thyroid insufficiency in this connection is shown by the fact that such cases are usually cured by the administration of thyroid extract. Many writers, including Biedl and Blair Bell, state that swelling of the thyroid is very common during the menstrual periods. Biedl is of opinion that, though it may be partly due to the general vascular changes which are associated with menstruation, there is no doubt whatever that a general biological relationship exists between the thyroid gland and the ovaries.

Blair Bell, on the other hand, points out that excessive thyroid secretion may act in one of two ways, namely: (1) It may stimulate the genital functions to excessive activity, or (2) it may upset general metabolism to such an extent as to cause them to cease altogether. He says that there is a form of hyperthyroidism which results in excessive menstruation, and

which is not associated with any of the ordinary symptoms of exophthalmic goitre. In his experience this excessive functional activity is not infrequently accompanied by menorrhagia. Blair Bell suggests the possibility that this excessive functional activity may possibly be due to incomplete development of the ovaries.

As regards the use of the term *hyperthyroidism* to describe Graves' disease, there seems to be some difference of opinion as to whether this is a very suitable description of it. Berry says that he does not go so far as to say that Graves' disease is due to thyroid insufficiency, but he considers that such a statement would be quite as accurate as to say that it is due solely to excess of thyroid secretion. In his opinion the idea that it is due to hyperthyroidism has arisen from the fact that the symptoms of excess are so very conspicuous that they completely overshadow the concomitant signs of thyroid insufficiency. Oswald also thinks that goitre, including Graves' disease, should not be regarded as a manifestation of increased thyroid activity, but rather as an indication that the secretion has lost its physiological value and become perverted.

Murray Leslie, in a series of cases, has observed the effects on menstruation of conditions of a certain degree of hypo- and hyperthyroidism, and concludes from clinical observation that the thyroid gland possesses two varieties of internal secretion, the one being of an excitatory character, and the other inhibitory. Some of his cases of hyperthyroidism were associated with profuse menorrhagia, others with partial amenorrhea. He is of opinion that in cases of obstinate amenorrhea the ovaries may very possibly be normal, and the thyroid or pituitary responsible for the symptoms. He emphasizes the desirability from this point of view, of using combined glandular extracts in the treatment of amenorrhea and other disorders of the genital functions.

The Thyroid Gland and Pregnancy.—Most of the writers on the subject seem to agree that it is quite a common thing for a woman who is suffering from goitre of any kind to say that it increases in size and causes more discomfort during pregnancy. Blair Bell thinks that this increase of thyroid activity, which in his opinion is most marked in the early stages of pregnancy, takes the form of a storage of colloid material in the vesicles of the gland, and that

this storage of colloid is probably necessary, owing to the changes in metabolism associated with pregnancy. He thinks that while thyroid activity is most marked during the early stages, that of the pituitary gland and suprarenals is most marked during the latter stages of pregnancy. Mr. James Berry does not agree that enlargement of the thyroid is most marked in the early stages of pregnancy as in his experience enlargement of the gland and dyspnoea usually occurred in the latter months.

As regards excessive thyroid secretion, Blair Bell is of opinion that it does not affect fertility unless the patient is in an advanced stage of Graves' disease. If pregnancy, which it rarely does, occurs in a case of marked exophthalmic goitre, he recommends the administration of large doses of calcium salts, owing to the tendency to post-partum and ante-partum haemorrhage. While he is unable to say positively whether or no pregnancy is capable of causing exophthalmic goitre, he has certainly met with several cases in which its onset occurred during pregnancy, and has found pituitary extract very useful in such cases.

Louise McLroy has seen a previously cured goitre recur on the onset of pregnancy. She concludes that the enlargement of the thyroid during menstruation and pregnancy is probably due to the added strain which pregnancy throws on the organism, and the toxins developed by the ovary or the embedding ovum. The thyroid, in an attempt to counteract this state of things, takes on added toxins.

Blair Bell points out that it has sometimes been said that ovulation ceases during pregnancy. If this is so, it may indicate that the insufficiency of ovarian secretion throws a considerable strain on the other organs of internal secretion, such as the thyroid and pituitary glands, and may, therefore, result in hyperplasia of these organs.

PART II.

The Thyroid and the Menopause.—Blair Bell is of opinion that deficiency of ovarian secretion, except when due to the natural or artificial menopause, may most often be traced to abnormalities in the more distant endocrinous glands. It is easy to understand that the psychic and nervous symptoms, which are usually associated with the natural menopause, are due to the loss of the ovarian secretion, which up-

sets the balance of correlation between the glands of internal secretion, and also to the changes in these glands which occur at this period, notably the thyroid and pituitary. It is a well known fact that intravenous injection of thyroid extract tends to lower blood pressure at the menopause.

In this connection Murray Leslie refers to the hypothesis advanced by Grünbaum and Ehrlich of the possibility of there being some connection between the growth of cancer in women and defective correlation of the internal secretions. Ehrlich assumes that normally certain substances are present in the circulation, derived from the internal secretions, and that these substances may possibly possess the property of stimulating the body cells to resist the cancer cells. If this is so, one would naturally expect the common incidence of cancer in women after the menopause, and its occurrence in earlier adult life might possibly be due to defective correlation of the endocrinous glands. In support of this hypothesis Murray Leslie reports a case of inoperable cancer in a woman of 28, who six months previous had developed amenorrhoea, with the appearance of hair on the face and body.

Effect on the Genital System of Removal of Thyroid.—If the endocrinous glandular system is in such intimate relationship as would appear from what has been said, we should naturally expect that on the one hand complete removal of the thyroid would have an influence on the genital system, and that on the other hand that removal of the ovaries would have a corresponding effect upon the thyroid. The results of investigation show that this is the case.

According to Leonard Williams, the thyroid performs the following functions:—It presides over the nutrition of the skin and its appendages, and has a powerful influence on general metabolism, especially calcium metabolism. It is concerned in the development and building up of the body, the development and maintenance of the sexual functions, and with the maintenance of the body temperature. It is one of our chief defences against toxic invasion, is essential to the proper working of the nervous system, especially the higher functions of the brain, and reinforces or antagonises the action of the other ductless glands, especially the genital glands.

It is, therefore, not to be wondered at that

removal or atrophy of an organ of such universal importance should have a profound effect upon the harmonious correlation of the internal secretions. Blair Bell's experiments showed that after complete removal of the thyroid there is as much muscular atrophy of the uterine as is seen after oöphorectomy, both in pregnant and non-pregnant animals. Changes also occur in the suprarenals, and there is increase in secretory activity of the pituitary body.

In women thyroid insufficiency affects the genital functions in proportion to the degree of insufficiency. Marked insufficiency, such as is seen in myxoedema, almost invariably leads to sterility. Excessive thyroid secretion is not infrequently associated with pathological conditions in the pelvis, but in such cases Blair Bell emphasizes the importance of distinguishing between those resulting from genital affections and those which are the cause of genital affections.

Effect of Oöphorectomy of the Thyroid.—We therefore see that important changes occur in the genital system as a result of complete removal of the thyroid, and the investigations, both experimental and clinical, of Blair Bell and others, show that double oöphorectomy leads to profound alterations in the thyroid and other endocrinous glands, affording further proof of the close relationship which exists between them and the ovaries.

Blair Bell found that in the rabbit experimental removal of the ovaries resulted in greatly increased functional activity of the thyroid, as shown by the production of colloid material, with which the vesicles of the gland became greatly distended. This newly formed colloid material differs from normal colloid material in that it is basophile and stains blue with haematoxylin, whereas normal colloid is acidophile and stains pink with eosin. Blair Bell says that he cannot account for this particular alteration in reaction and staining, but he suggests the possibility that the colloid produced after oöphorectomy may represent a storage secretion, formed to meet the alteration of metabolism. He is of opinion that the enlargement of the thyroid seen in pregnancy corresponds to a certain extent with that occurring after oöphorectomy. He has known more than one case of exophthalmic goitre to commence during pregnancy, and in view of

the results of his investigations he thinks it is amply proved that insufficiency or absence of ovarian secretion leads to changes in the thyroid which may in comparatively rare cases result in exophthalmic goitre. Louise Mellroy also says that it is a well known fact that goitre sometimes follows oöphorectomy.

In addition to producing changes in the thyroid, oöphorectomy seems also to influence the other endocrinous glands. Blach and Hülles report atrophy of the pineal gland in the whole series of cases. In the suprarenals of rabbits and cats Blair Bell found a definite increase in the reticulated portion of the cortex at the expense of the zona fasciculata, together with temporary increase in secretory activity of the anterior lobe of the pituitary gland. His researches lead him to conclude that the changes in the other ductless glands after removal of their number are sometimes compensatory, and represent an attempt to correct the disturbances of general metabolism.

The Importance of Calcium Metabolism in this Connection.—Calcium salts are of great importance in human economy. In early life they are chiefly used for building up the bony skeleton, after puberty they participate to an important extent in the processes of reproduction, and in late adult life they are largely concerned in bringing about the pathological changes associated with senility, due to the retention of calcium salts in the tissues, especially the arteries. The various internal secretions directly influence calcium metabolism in one way or another, some of them, such as those of the suprarenals and the pituitary gland, tending to produce retention of calcium salts in the blood and tissues, and others, such as those of the thyroid and ovary, tending to induce excretion of these salts. This fact is the basis of the treatment of hyperthyroidism by pituitary extract, which has been recommended by Blair Bell. This treatment is on the principle that it is a normal function of the suprarenals and pituitary gland to antagonise the action of the ovaries and thyroid, and thus maintain equilibrium in calcium metabolism. Blair Bell has come to the conclusion that the effects on the thyroid and other endocrinous glands after removal of the ovaries are due to the upsetting of the balance of calcium metabolism by the absence of the ovarian secretion. In animals there is marked retention of

calcium after oöphorectomy, with increased excretion of the phosphorus and nitrogen.

Influence of "Femininity" on the Severity of the Symptoms after Oöphorectomy.—In discussing the question of the advisability or otherwise of indiscriminate oöphorectomy, Blair Bell explains the great variations in the severity of the reaction of it, and also to the natural menopause, by the degree, in individual cases, of what he describes as "femininity," which he says normally varies within wide limits. In other words, femininity indicates the previous functional activity of the genital system, especially of ovarian secretory activity. He is of opinion that the severity of the symptoms following oöphorectomy and the natural menopause is directly proportionate to that degree of femininity, and thinks that the ignoring of these individual variations accounts for the conflicting opinions expressed by surgeons, some of whom state that it produces little or no disturbance, while others describe severe reactions and distressing nervous and psychic symptoms. He suggests the possibility of estimating the degree of femininity before operation, and thinks that in many cases it would not be difficult to do so. If femininity and ovarian activity were found to be decidedly below the average, it might be possible to assert that little disturbance was likely to result from the operation, but unless this distinction can be made he does not think it right to perform oöphorectomy indiscriminately. In the discussion which followed the reading of Blair Bell's paper Dr. Murray Leslie said that he strongly supported the view of the relationship between femininity and the secretory activity of all endocrinous glands.

Importance of all Internal Secretions as a Whole.—Enough has been said to indicate most unmistakably that there is an intimate and most remarkable relationship between all the organs of internal secretion, and that they one and all play an important and essential part in the process of development and reproduction. This is shown above all by the alterations in the thyroid and other ductless glands which follow oöphorectomy, and on the other hand by those in the genital organs, especially the atrophy of the uterine, which result from complete removal of the thyroid. Total ablation of either the ovaries or the thyroid results in profound changes in general metabolism.

Biedl points out that on the one hand hyperthyroidism leads, as in Graves' disease, to functional changes in the ovaries, and that, on the other hand, primary changes in ovarian activity may secondarily affect the thyroid, and thus influence the development of the symptoms of Graves' disease.

Blair Bell emphasizes the importance of all the endocrinous glands in the development of the genital functions, and points out that, although the genital organs may be perfectly normal morphologically, they fail to become functionally active at puberty unless the whole of the endocrinous system is in perfect correlation and functioning harmoniously as a whole. Development of the genital organs appears to be dependent upon general metabolic condition regulated by the influence of all the endocrinous glands. Blair Bell also points out that what he describes as "femininity" is itself dependent upon the correlation of all the endocrinous organs, and not upon ovarian secretion only. He regards the ovaries as part of a system, "to which most, if not all, the other endocrinous glands belong," and that these latter organs are of as great significance in relation to the reproductive functions as the ovaries themselves. The exact rôle played by the individual members of this system still remains more or less obscure, and we do not yet know to what extent excessive calcium retention, due to ovarian insufficiency, may be compensated for by thyroid secretion. On removal of the ovaries or their atrophy at the menopause the reproductive functions of the remainder of the endocrinous system cease, and the harmony of the system is naturally disturbed. In this event it is obvious that the individual must suffer if compensation or readjustment is not speedily and satisfactorily re-established.

If the connection between the ovaries and the other ductless glands is so intimate as is assumed by Blair Bell and others, it would indeed appear advisable to take this correlation into consideration before deciding to perform double oöphorectomy, as we should have to consider the effect of the operation, not on the genital system alone, but also on the other ductless glands. Blair Bell says that in future "those who are interested in gynæcology may come to look upon the ductless glands, in that each one of them is absolutely indispensable to the harmony of the genital functions."

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Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

(Continued from page 536.)

CONCERNING ATROPHIC RHINITIS AND OZENAS WITH REPORT OF CASE REFERRED TO LAST YEAR.

LEWIS R. COFFIN, M.D., NEW YORK CITY.

The speaker believes he was the first to suggest that the foul odor which so frequently accompanies atrophic rhinitis and constitutes the disease known as ozena has its origin and is caused by a chronically diseased and poorly drained antrum. Since making this statement others have reported to him that they had treated several cases in this manner with the same excellent results.

In one of his cases there was no improvement whatever, although operations had been performed on both antra.

He was unable to account for the failure in this instance.

DISCUSSION.

DR. CORNELIUS G. COAKLEY: It seems to me that all the odor should not be attributed to disease of the maxillary sinus. If the patient had pansinitis I do not see why it should be cured by washing out the maxillary and leaving the same pathologic process in the ethmoid and frontal. Of course you do not get so much odor from them, but I should think you should clear them up as well as the maxillary, and I suggest that as the cause of the continuation of the odor.

DR. GEORGE L. RICHARDS, Fall River: I have had good luck in using the chlorinated oil in the type of case that Dr. Coffin has been speaking of. It is purely empirical. I used it thinking that it would do some good to place it on the surface and hold it there. It was done with the swab or spray, and not after opening the antrum. I have not been converted to the belief that all or even the majority of cases of atrophic rhinitis are due to antrum disease.

DR. THOMAS H. HALSTED, Syracuse: After seeing Dr. Coffin's cases last year, I treated a case with the foulest odor I ever encountered. I did a double antrum (simple Mikulicz) operation on her. The odor was simply unbearable and unendurable. Nothing further was done. The saline douche that she was using was kept up. I did not see her, after she went home, for a year. Then the odor had entirely disappeared. There was no odor from the nose whatever, and no other treatment had been carried out during this time but the washing out. In three of five other cases there was absolutely complete cessation of all odor. It was one of the most satisfactory operations of any that I have done. Of three of my five cases, the odor of which was very bad, was entirely relieved by the antrum operation; in the other two it was greatly lessened. There was a marked diminution in the amount of crusting in the nose. The odor comes, I am satisfied, more from the gas from the antral secretion than from the nasal scabs, though doubtless some comes also from the other sinuses, the frontal, ethmoid and sphenoid, when they are involved, and their treatment, by ventilation through operation, will be required in such cases.

DR. HENRY L. SWAIN, New Haven: What did you find in the maxillary sinus?

DR. THOMAS H. HALSTED, Syracuse: Nothing much; the operation was done by simply opening through the nose. I was not able to see as you would with a Caldwell-Luc. I made a good big opening through the nose and got ventilation and prevented the retention of secretion and pus.

DR. SWAIN, New Haven: Did the x-ray show anything in the antrum before operating?

DR. HALSTED, Syracuse: There was no x-ray made.

DR. SWAIN, New Haven: Did the transilluminator?

DR. HALSTED, Syracuse: Yes, and I did one

of these operations recently in a nurse where the transillumination was clear.

DR. SWAIN, New Haven: You operated in spite of that?

DR. HALSTED, Syracuse: Yes.

DR. GREENFIELD SLUDER, St. Louis: The point that I should like to make is that if Dr. Coffin has established the opening of the antrum for the cure of ozena and the stench of an atrophic rhinitis, it seems to me that it is one of the greatest advances presented to us for a long time. Last year I asked the question, which was not answered, "What happens in a case of atrophic rhinitis when the olfactory fissure is crusted all around?" There is an antrum open, but the atrophic process is as active and destructive there as elsewhere.

DR. HENRY L. SWAIN, New Haven. In speaking to Dr. Sluder's remarks, I was endeavoring to bring out the proposition that Dr. Coffin has brought before us, because he will be accused of saying that he cures atrophic rhinitis by opening the antrum. He does not cure the rhinitis, but does cure the odor, as Dr. Sluder says. As I said at the last meeting, it was a most radical remark on Dr. Coffin's part, and if it bore truth as promised it was really an epoch-making suggestion, and I rise to confirm Dr. Sluder.

DR. GREENFIELD SLUDER, St. Louis: I forgot to state that I am going to try it when I get home.

DR. HANAU W. LOEB, St. Louis: It is obvious that if there is any process of this nature in the antrum, by securing good drainage there will naturally be improvement in the odor, just as I have found that by clearing out the ethmoids a particular odor that may accompany the process will improve or disappear. I feel that Dr. Coffin's contribution in this respect constitutes simply calling attention to the fact that the antrum being the largest cavity connected with the nose and most intimately associated with its function, the greatest opportunity for the development of these crusts is offered by it whenever it is subjected to the action of the putrefactive bacteria. I do not see why it should be affected in all the cases, or even in more than a fair number of the cases, because, according to my information and observation, the antrum is not more often affected than other sinuses.

DR. HENRY L. SWAIN, New Haven: If the people will take enough pains to cleanse the nose properly most of them can remain inoffen-

sive to their immediate environment. That would not be the case if the odor depended entirely on the condition of the interior of the antrum. So, although I am particularly friendly to Dr. Coffin's suggestion, I am sure that we are not going to cure all cases by opening the antrum, because all cases are not due to that. We are not saying that he does not do it, but we hope to do equally good work. In an atrum where I could see in pretty well through a large natural opening between the antrum and the nose, where there was an atrophic process in the nose, we could see in the antrum that the mucous membrane lining the antrum had the same process going on in it as in the nose. That is, there were masses of atrophic material lining the entire cavity of the antrum. If that could exist once, it could many times, and that explains why in some of these cases in which, as Dr. Halsted discovered, where there is no darkness under transillumination, there will be going on the same process as in the nose, which can be relieved by opening the sinus, and only by doing so.

DR. T. HALSTED, Syracuse: In three of my cases the odor was extreme. In the other two, the odor is much relieved. It is simply remarkable what improvement has taken place. I can only say in a general way that there was a diminution in the amount of crusting. I do not believe that all the odor comes from the crusting. I believe that it will be proved that it is from the maxillary sinus as well as the ethmoid and frontal.

DR. GREENFIELD SLUDER, St. Louis: If the author can locate the antrum as the point from which the stench proceeds, that is the most valuable contribution that we have had for a long time.

DR. L. A. COFFIN, New York City, closing: Dr. Sluder has given a perfectly proper definition of ozena as "the odor accompanying atrophic rhinitis." Then he talks of seeing scabs about the olfactory fissure—but does not state that there is any odor or ozena from these particular scabs. We are not discussing scabs, but an odor known as ozena.

Dr. Coakley asks why the antrum rather than the other sinuses? The antrum is practically the only sinus I have ever opened from which was emitted a foul odor. This occurs frequently and is due to the anatomic structure of the antrum. Drainage is at the top, while in most other sinuses drainage is from the bottom.

The case of a young lady comes to mind. She

had extreme atrophy, no inferior or middle turbinates in sight, nose much bescabbed and, when she first came, emitting a foul and stinking odor. Her antra having been opened and cleansed, the odor (ozena) has entirely disappeared, while undoubted disease of many of the other sinuses persists, as does scabbing, although not to the same degree as before the treatment of the antra.

She was one of the cases seen by Dr. Halsted. Another was a young boy about twelve years of age. Apparently he had not only marked disease of the antrum of one side, but marked ethmoiditis as well—nose full of crusts and ozena. I opened and treated the antrum, purposely leaving the ethmoids untouched. The odor disappeared.

As to the value of the x-ray in diagnosis: It is a help, by no means infallible. Personally, I care little for another's reading of the negative. Now, these are the thoughts which I wish to impress and leave with you: First, that the odor of ozena comes frequently from disease of the antrum, and is relieved by the treatment of the antrum. Second, please remember that I have today reported a case not so relieved.

I trust that you will all try the treatment, as has Dr. Halsted, and that you will bear in mind that we do not expect 100% perfect results in 100% of the cases.

(To be continued.)

Book Reviews.

Shall Disease Triumph in Our Army? By MAJOR LOUIS LIVINGSTON SEAMAN, W.S.V.E. New York: American Defense Society. 1904.

This volume, published in 1904, is a plea for the reorganization of the Medical Department of the United States Army. The author describes Japan's conquest of preventable diseases, in the hope that the American army may be made as efficient as Japan's. Japan's preparatory work includes careful supervision of the slightest details. The medical officer is much more conspicuous than in our army; he is found at the front, in the rear, and in camps. The records of loss by diseases are much greater in the British and American armies than in the Japanese. Japan's aim has been to eliminate preventable diseases, and reserve her army for legitimate death on the field. In the Russo-Japanese War, instead of the usual average of four deaths by disease to one by bullets, the Japanese showed a record of four deaths from bullets to one by disease. The record shown by her naval hospitals is unparalleled. Her military hospitals are directed by trained, pains-

taking specialists who have the most advanced ideas in medicine and surgery, including scientific massage, surgical gymnastics, pharmaceuticals, bacteriology and excellent sanitation.

The hospitals at Shibuya, Fouama, Hikawa, Hiroo and Senadagoyo—their buildings, staff, nurses, equipment and diet—are described, and a contrast is made with our own unhappy army hospital and medical history. Military hospitals on the line of communication and reserve hospitals all show thorough preparedness, and the hospitals reveal a uniform condition of perfection in the theoretical and scientific arrangement of all the details.

One chapter of the book is devoted to figures and comparisons. The ratio in the Russo-Japanese war of those killed in action to those dying from disease is unprecedented: 8.83% died of wounds received in action; only 2% died of disease. Only 3.51% of the total sick in the Japanese army was due to infectious diseases.

The system of hygiene in the army is unusually effective because the Japanese recruit is taught to obey the surgeons, and medical officers' recommendations are rigidly enforced. The duties of the medical officer constitute the following three things: the selection of the recruit by physical examination, the preservation of his health after enlistment, and his care when he becomes sick or wounded. One of the chief methods by which success in prevention of disease has been achieved lies in the fact that systematic instruction is given in elementary hygiene and first aid, by the medical officer, to every soldier enrolled in the army. In addition, each soldier is given a handbook dealing with various diseases and injuries. The one hygienic rule that stands out most clearly is that the soldiers are never allowed to drink water unless it has been boiled. Water is tested all along the line of march, and placards are posted describing the uses to which the water may be put. Sanitary inspection is made of places to be occupied by troops; and canteens, well managed and wholesome, are supplied.

The author makes comparisons between our little wars in Cuba and Porto Rico and the well-conducted campaign of the Japanese in Manchuria. Incompetence—an insufficient transportation, food, shelter, medical supplies and medical attendance—characterized our army. The secret of the failure of the Medical Department in the United States lay in the fact that the medical officer can make recommendations but can never issue an order; he had no authority to carry out systematic sanitary work, whereby preventable diseases may be prevented.

Changes since this book was written have made our Army and Navy medical departments among the most efficient in the world. The contrast of their accomplishment in the present war, with that in the Spanish War, is evidence of the timeliness of the author's criticisms.

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PUBLIC HEALTH ADMINISTRATION IN RUSSIA IN 1917.

THE United States Public Health Service has recently issued a statement concerning Public Health Administration in Russia for 1917. The most unique and significant contribution which Russia has made to the art of public health administration is the organization of a combined system of free medical care and health protection for her rural population through the medium of the zemstvos, or local representative assemblies. The problems of rural medicine and rural sanitation are everywhere most pressing and most difficult ones. In Russia, with 85 per cent. of her population of some 180,000,000 living in rural districts, there problems are even more urgent than they are elsewhere. A brief consideration of the way in which their solution has been attempted is fundamental to a conception of the general system of health organization of the new Republic.

The first hospitals were built in connection with churches and monasteries after Vladimir embraced Christianity in 988. Many monks and priests became famous as healers in the period from the eleventh to the fourteenth century and lay physicians gradually made their appearance. Ivan the Terrible brought English medical men over in the sixteenth century and Peter the Great introduced many foreign physicians and sent Russians to learn the art abroad. Under Catherine the Great the Medical Faculty of Moscow was organized and many hospitals were established. The Medical-Chirurgical Academy (now the Military Medical Academy) was founded at Petrograd in 1800.

In spite, however, of advances made in the great cities, the rural population of Russia lived and died practically without medical care. They were treated, if at all, by midwives and occasionally by feldschers, the latter being medical assistants of a type peculiar to Russia, who have completed four years in the Gymnasium (about equivalent to our Grammar school graduation) and have then spent three or four years in special training, which includes elementary anatomy, physiology, with a little bacteriology, pathology, and the like. Fully trained physicians were known in the country only as Government officials who made their appearance on the occasion of an autopsy or of some official inquiry.

The zemstvos or rural constituent assemblies were created in 1864 by Alexander II. They are elective bodies which conduct the local government of Provinces and of the rural districts within the Provinces. At present they exist in between 35 and 40 of the 50 Provinces of European Russia. Members of the Zemstvos under the old regime were chosen by a special electorate, including owners of a specified amount of land or property, representatives of educational and benevolent institutions, and commercial companies. Under the Republic, the basis is of course universal suffrage, and far-reaching changes in personnel are likely to take place as a result. The assemblies of Provinces and districts meet annually to legislate and to elect the permanent zemstvo administrative organization. Zemstvo activities deal with problems of local taxation, road construction and maintenance, local postal service and the like, as well as with education and health pro-

tection. Under the Republic, the provincial zemstvos should exercise powers essentially similar to those of our State Legislatures, while the district zemstvos constitute units somewhat analogous to the county governments in certain of our Southern States.

When the zemstvo organization was created there were hospitals in the larger centers of population controlled by the provincial governors, and there were a few small hospitals, chiefly served by feldschers, for the peasants of L'Etat and L'Apanage. The emancipated serfs were wholly unprovided for, as were the industrial workers, with the exception of the miners in the Province of Perm. Altogether there were turned over to the newly organized zemstvos, 32 provincial hospitals, with 6200 beds, and 303 district hospitals, with 5100 beds. These hospitals were for the most part in very bad repair, highly insanitary, and grossly mismanaged. There was rarely provision for adequate isolation of communicable diseases, and it is small wonder that "the necessity of entering a hospital was regarded as a chastisement from God."

The idea of furnishing real medical care, not only to the city dweller, but to the peasant in the remote rural district, seemed to many observers in 1864 too Utopian, even to be thought of. The difficulties were indeed great. In some regions, villages are a mile apart, with 50 inhabitants per square mile, while in other regions villages may be 5 to 15 miles apart, with 5 to 10 inhabitants per square mile. Yet it was to this Herculean task that the zemstvos promptly addressed themselves. At first they attempted to care for the rural sick by feldschers, under the direction of an itinerant physician. This service proved inadequate, however, so a system of fixed medical districts, each provided with a small hospital and a qualified physician, was introduced.

So successful were the zemstvos in the expansion of this side of their work, that by 1890 instead of the 335 hospitals, with 11,309 beds originally turned over to them, there were 1,422 zemstvo medical districts, with 1,068 hospitals of 26,571 beds and 414 dispensaries. The number of medical practitioners also greatly increased. A large part of rural Russia is now divided into medical districts, each of which centers about a small hospital or dispensary. Medical care is always given without charge,

and there has been a steadily increasing tendency to make all dispensary and hospital treatment free as well. The care of the sick is recognized by the zemstvos as a natural duty of society rather than as an act of charity.

Aside from this purely medical work, which was their original function, the zemstvo physicians in most provinces have extended their activity along preventive lines. The relation between the prevention of disease and the free medical care of the poor is a very close one, and it is interesting to note that this has come about in Russia by the expansion of a state medical service along preventive lines, while with us the reverse process is taking place, health departments, originally organized for preventive work alone, developing as an offshoot provision for medical examination and clinical care of the individual.

Today the regular zemstvo physicians are expected to devote a certain proportion of their time to school inspection, control of epidemics, collection of vital statistics, and public-health education.

The zemstvo organizations have rendered great service along army medical and sanitary lines during the war. When the strain of war proved too heavy for other agencies, the union of zemstvos, the union of municipalities, and the Russian Red Cross stepped into the breach and assumed a large share, not only of the medical care, but of the clothing and provisioning of the army. The zemstvo and municipal unions now maintain 200,000 hospital beds in the rear for army use, as well as a large organization at the front, and they have an elaborate and well-organized machinery for purchasing or manufacturing and distributing medical and surgical supplies. A central committee, representing the unions of zemstvos and municipalities, the Russian Red Cross, and the sanitary department of the army, meets every night in Moscow to plan for the evacuation of sick and wounded soldiers, of whom 4,000,000 have been handled by this and other similar committees since the beginning of the war.

In Russia, as elsewhere, the most intensive development along public-health lines has taken place in the cities, and particularly in the two cities of Moscow and Petrograd, which are in the 2,000,000 population class.

Moscow leads in municipal health admin-

istration, and her system is a fair example of the methods prevailing in the large cities of Russia. The water supply of the city (averaging in 1915, 27,270,000 gallons per day) is derived chiefly from the Moscow River, and is purified by slow sand filtration, with chemical coagulation when necessary. About one-sixth of the total supply is, however, contributed by well waters from Mytiszecy. Bacteriological results on the treated water are good, and the comparatively low death rate of the city from typhoid is good evidence of the effectiveness of the process.

Moscow is one of the very few Russian cities which have installed comprehensive systems of sewerage and sewage disposal. Not over a dozen cities of Russia have sewerage systems which receive fecal wastes, and only four or five have any system of sewage treatment. Even in Moscow, only the central district of the city is at present connected with the sewers, and in 1915, 572,442 cartloads of night soil were removed from the outlying districts and dumped under highly offensive conditions in areas of low land. The sewage proper, which amounted in 1915 to 18,274,000 gallons per day, flows to two separate irrigation areas.

Aside from strictly sanitary engineering problems, the health administration of the city is directed, so far as its general policy and finances are concerned, by a board of health of 20 members. There is also an advisory medical board, representing the hospitals, district and school inspectorate, which passes on recommendations of bureau chiefs as to medical policies, and nominates candidates for medical posts; a sanitary advisory board which exercises similar functions in regard to problems of epidemiology and the like; and half a dozen smaller advisory boards, which consider special problems relating to ambulances, hospitals, obstetrics, psychiatry, school inspection, veterinary medicine, pharmacy, etc. This system of advisory boards through which the expert staffs express their views on the problems of policy which concern them is very characteristic of Russian health administration in all its phases.

Executive authority is divided between three bureau chiefs, who deal respectively with hospitals, sanitation, and sanitary statistics, all of them being physicians. This arrangement, with

its close correlation between hospitals and sanitation and the recognition of statistics as an independent branch of cognate importance, is also typical of general practice in Russia.

The statistical bureau of Moscow, under Dr. Mikhailovsky, is particularly well-organized, and has a library of 50,000 volumes.

The routine sanitary work of the city is conducted by 20 district medical inspectors, who are charged with general functions which belong to the divisions of communicable diseases and sanitation in an American city health department; that is, they visit cases of acute communicable disease, secure their isolation, study the epidemiological factors involved, and inspect factories, lodging houses and the like. The work of terminal disinfection, which still occupies a very prominent place in Russian sanitation (and with some propriety in view of the prevalence of insect-borne diseases), is cared for by a chief disinfector, with some 25 assistants; and the city maintains an elaborate disinfecting station for clothing and bedding, with steam and hot water disinfection, and with a "Japanese chamber" for combined heat and formalin treatment. For food control, there is a separate force of 20 inspectors, and analytical work is carried out in a well equipped food and water laboratory. Diagnostic examinations are made at the university and the various hospitals. Finally, there is a third group of medical men for school inspection. Each of these physicians has about 20 schools and some 3000 children under his care. He inspects the school buildings, and at the beginning of the year makes out an individual health card for each child and keeps track of all who are in need of special attention. He attends to the isolation of school children and the disinfection of schoolrooms, instructs the teacher in the early signs of communicable disease, and sends children in need of treatment to the general hospitals or to the special school clinics maintained for the treatment of diseases of the eye, ear, nose, throat, and teeth. Vaccination is stimulated by sending medical students out to vaccinate, free of charge, in the poorer districts, but is not compulsory.

The city of Moscow maintained 24 public hospitals in 1915, with a total of 6992 beds, and the number of new patients entering during the year was 72,830; 1,264,676 persons made a total of 2,969,806 visits to the public dispen-

saries. There is one special hospital of over 400 beds, and one special clinic for venereal cases, while cases of this character, if not in an infective stage, may be received at any clinic. There are two sanatoria for tuberculosis, with a capacity of about 40 beds each, but tuberculosis cases are also admitted to most of the general hospitals.

The city also maintains admirable municipal lodging houses, with over 5000 sleeping places. For dealing with the important problem of infant mortality, the city maintains three infant-welfare stations, at which some 3000 infants are received during the year, and about 100,000 quarts of milk distributed. The principal station, in connection with the Morosov Hospital, has a perfectly equipped plant. The rooms are light, airy, and tiled, every possible equipment for the medical examination of the infants and for the preparation of milk is provided, and the waiting room is furnished with an admirable collection of models and pictures, illustrating good and bad methods of infant care, the models of dangerous foods, and the pictures of objectionable methods of clothing and the like, all being labeled in red, so that the most ignorant mother cannot fail to grasp their significance.

In regard to the various communicable diseases, measles, as is often the case with us, is the most serious of the acute contagia, while typhoid fever is fairly low, and diphtheria and scarlet fever very high. Typhus and relapsing fevers have been fairly well controlled in recent years, though the central location of Moscow and its heavy railroad traffic have in the past exposed the city to frequent infection with these diseases, which have often made their first local appearance in the lodging houses. Smallpox is still a serious factor in the death rate, and dysentery constitutes a grave problem. Pulmonary tuberculosis is fairly high and is probably much higher than is known. The rate for diarrhea and enteritis under two years is appalling.

MEDICAL NOTES.

NOTES ON INFLUENZA EPIDEMIC.—New York's death list is increased according to Health Commissioner Copeland who announced that

2,073 cases of Spanish influenza had been reported on October 6th as against 2,067 cases on the previous day. There were 185 pneumonia cases and deaths from both diseases totalled 113 or 37 more than in the previous 24 hours. According to Dr. Copeland, the new cases are of a less severe nature than those reported at the first of the epidemic.

Brockton Board of Health announced that the death rate has increased in that district, and that there were 25 deaths in the 24 hour period, making a total of nine more than had occurred in any other 24 hours. Deaths in three weeks from the epidemic aggregate 220. Despite the increase in the number of deaths, the number of new cases reported has been considerably less in the past week. The new military tent hospital on land near the Brockton Hospital opened its doors to 35 patients, several of whom came from Whitman and other surrounding towns. The hospital has a capacity of 200 beds. It is in charge of Capt. Cushing of the state guard.

In Boston the epidemic is on the wane. Burial permits are decreasing from 170 daily to 150. The schools are now open. The retail stores are ordered to open at 10 and to close at 6.15 p.m. and business offices are requested to close at 4 p.m. Another appeal has been made by Mr. Endicott for nurses and nurses' aids. No deaths reported in the First Naval District or among army men under jurisdiction of the Northeastern Department. There are also fewer new hospital cases and ambulance calls.

Springfield's latest reports gave an increase in the number of deaths in the western part of the state. The official board of health reports 10 deaths, 370 new cases and a total of 1325 cases up to Oct. 7th. Springfield Hospital has been closed to all cases except influenza.

Pittsfield and Athol were most affected. Pittsfield has 200 new cases, and Athol reports one death, 100 new cases with a total of 850. The Woman's Club and Red Cross have opened kitchens to prepare food for entire families who are ill.

Holyoke reported six deaths and 73 new cases up to Oct. 7th, making a total of 640.

Turner's Falls had four deaths and Westfield had one death and 111 new cases. Orange reported five deaths; Greenfield had three deaths and 54 new cases; South Hadley had two

deaths, one a freshman at Mt. Holyoke College. There are 18 new cases here, making a total of 203. There was one death in Pittsfield, one in South Deerfield, five in Millers Falls and two in Shelburne Falls.

First anti-influenza serum inoculations were made on every officer and inmate of the Monson State Hospital. Pennsylvania, New York and Massachusetts doctors are on duty to watch developments at the institution.

In Lynn, 20 deaths due to influenza were reported, and the Mayor of Lynn has asked the city council to make a special appropriation to fight the epidemic. The schools are closed and will continue so for a fortnight or more. A large number of teachers are also ill. In the temporary home for children at 11 Olive St., there are now 40 beds. Another temporary hospital will be opened at Church St. for children whose parents are ill with influenza.

Pneumonia in Camp Devens continued to decrease, with 4532 new cases and 1388 deaths up to Oct. 7th. Influenza cases reported from all camps since the beginning now total 167,000; pneumonia cases, 17,102, and deaths, 4910. Camp Dodge, Iowa, reported the largest number of new cases during the week ending Oct. 7th, 3092 cases, and Camp Funston, Kan., the next largest, 2070 cases.

Camp Meade, Md., and Camp Lee, Va., show abatement in the progress of the epidemic; pneumonia cases at the former numbered 844, with 115 deaths, and at the latter 357, with 74 deaths. Camp Grant, Ill., and Camp Sherman, Ohio, reported an increase.

Six physicians in Boston have died from this disease: Dr. Thomas F. Leen, at the Carney Hospital, Sept. 16; Dr. Philip T. Buckley, South Boston; Dr. Omar P. Badger, at the City Hospital, Sept. 25; Dr. Louis Salvin, Massachusetts Homeopathic Hospital; Dr. Rae W. Whidden, at the Massachusetts General Hospital, Sept. 25, 1918; and Dr. Cohen at the Boston City Hospital.

The Attleboro Hospital is reported filled. Four deaths and 45 new cases of influenza were reported recently. The Attleboro Sanitarium will be opened for cases. Volunteer nurses are aiding the physicians. The total number of cases remains at 1000.

Leominster reported 46 new cases of influenza and one death.

Greenfield has had seven deaths due to influenza.

Gardner reported four deaths from pneumonia, bringing the total number up to 20. Among those ill are four of the nurses.

The latest developments in the influenza situation have caused the Boston authorities to believe that the crest of the epidemic has been passed. Calls for physicians have decreased.

The Province of Ontario has succumbed to the attacks of the influenza. It has also spread over parts of Quebec, Niagara-on-the-Lake, Ont., Kitchener, Ont., and London, Ont. In Quebec it is confined largely to the military population, with 45 new cases reported at Montreal. The total number at Montreal among the military forces is 189. There were 14 new cases and four deaths in the military camp at St. John's, Ont.

Reports from various parts of the country and the world in general show a general increase in the cases, and a spreading of the disease, while local conditions seem to be on the whole improving.

Salem reports 55 new cases and that 721 persons who were ill with the influenza have recovered sufficiently during the past week so as not to need further medical attention. At the Loring Villa Emergency Hospital, Dr. E. Campbell Douglass is in charge, and Miss M. Pauline Smith, Superintendent of the Woman's Friend Society, is in charge of the diet of the entire institution. The Sisters of Ste. Chretienne and the Sisters of Charity of the Immaculate Conception Church are doing fine work as nurses. District nurses are also doing splendid work.

Lowell shows a marked abatement in the epidemic, which has caused 199 deaths from 5033 cases in this city in the past month. There were 179 new cases and eight deaths on Oct. 12, as compared with 332 new cases and 14 deaths the previous day.

Revere had a total of 51 deaths up to Oct. 8.

In Somerville the epidemic is abating. There were 58 new cases on Oct. 9th, as compared with 70 the previous day. One church remained open and continued services, the Emmanuel Episcopal, and the Catholic Churches

were open but had no services. All other churches were closed.

An ordinance compelling the wearing of gauze masks by every person in San Francisco as a means of preventing the spread of the epidemic was passed Oct. 24 by the board of supervisors, at the request of the Board of Health.

The fact that nearly 2,600 deaths from the epidemic have occurred in Boston since the second week in September, despite the best medical effort to prevent them, shows that the reports have not been exaggerated, and impresses the seriousness of this disease to the health of the community. General conditions throughout the state are improving. The District Nursing Association makes plea for nurses' aids. Hyde Park has planned an intensified campaign against contagion. There was only one death in the First Naval District last week.

Maj. General Crozier recommended the transfer of no New England troops during the epidemic. Henry B. Endicott appealed for tents to help the State Guard establish open-air hospitals, the State's supply being exhausted.

The Cambridge Public Safety Committee reports that there were more calls lately for aid than any time during the past few weeks, but with a large number of workers all cases were taken care of. Twelve deaths were reported on Oct. 7th, as against 21 on the 5th. The capacity of the Temporary Hospital at the Merrill School has been increased to 105 beds and there are 85 patients there already. Five convalescent patients were taken to the Holy Ghost Hospital and more will be sent to St. John's Seminary, Brighton. The Columbus Day Nursery has offered its services on Green St. to the Public Safety Committee and children of patients will be taken care of. The Riverside Boat Club has offered its boathouse for hospital purposes. The soup kitchen at the Peabody School was opened under the direction of Mrs. Reed of the School Committee and hot soup delivered to the homes of the sick.

Mayor Morse, after a conference with the Board of Health, requested Adjutant-General Jesse Stevens to establish a military base hospital at Haverhill for the treatment of influenza patients. As tents were unavailable, portable wooden structures were used. A hospital unit

with a 100 bed capacity was established within a short time. There were five deaths at Haverhill from influenza and pneumonia on Oct. 6th, making a total of 26 in the previous week. It is estimated by health officers that there were in all about 1,000 cases, 100 having been reported each day for some time. The Kenoza Trotting Park was selected as the site of the new military base hospital by Col. Wm. A. Brooks and Maj. Emory of the State Guard.

The progress of the influenza has taken a westward course in severity, and leaving the eastern sections of New England in a much more favorable situation since the beginning of the epidemic.

Brockton raised the closing ban on October 21 on account of the good reports issued by the Board of Health. There were only eight deaths in a recent 24 hours and only 27 calls for doctors. At the Field Hospital there are still 135 patients. The four physicians who came from Ohio have left to assist in other cities.

Concord, N. H., announced a total of 55 deaths in October from Spanish influenza and pneumonia.

Nashua, N. H., had fewer cases up to October 14. Eight influenza deaths were reported in 24 hours. The post office force is especially hard hit. Soup kitchens are feeding 500. Inoculations have passed the 3,000 mark.

In Manchester, N. H., the epidemic is believed to be under control. The closing ban has been lifted.

Portland, Me., reports that the conditions in several surrounding communities are very serious.

Lewiston, Me., reports 75 new cases of influenza, making a total of 600. The disease has appeared at Bates College. It is understood that the Board of Health is taking steps to enforce closing orders in this city.

In the State Prison at Charlestown, 11 inmates died of influenza. There were 350 patients, but now there has been a decrease to only 25.

Brockton's total death rate on October 16 was eight, the lowest since September 28, and there were only 30 new cases. Vaccine was received at the City Hall and administered. Capt. J. J. McNamara and Capt. J. F. Callahan will

be in charge. A canvass showed that only 900 employees are out of the local factories.

Quincy removed ban on gatherings on the 19th of October. The epidemic is diminishing. There are only 17 patients at the various emergency hospitals. At the Fore River Emergency Hospital there are 36 patients.

In Lawrence there are 124 new cases but of a mild nature. There were 11 admissions to the base hospital during one day, and 12 were discharged as cured.

At Mansfield there were only four new cases. There is also a case of diphtheria here, which was sent to the Boston City Hospital. Since the epidemic started here, 115 cases have been treated at the hospital, but there are now only 29 patients. Mansfield has had 838 cases and 36 deaths.

In Springfield there was a total of 428 influenza cases and 18 deaths in the last few days, making about 2,000 deaths since the epidemic started. The report is 70 cases less than for a similar three-day period last week.

Pittsfield has had 1,500 influenza cases since the outbreak of the epidemic. Health authorities declare that there is a wane in the epidemic at the present time. An appeal was made to the women of Pittsfield to relieve the nurses, who were much overworked.

Four Westfield soldiers died in Southern camps on October 14: Private James B. Hendrix, Private David A. Hendrix, Private Warren Lee and Private Oldrich Schindler.

Portsmouth, N. H., has continued the ban on all public places in spite of the decrease in the number of influenza cases.

Washington is mobilizing all its powers for a national campaign against the epidemic. The number of army cases is considerably decreased. Since the beginning of the epidemic in army camps, the total of cases reported is 250,000; pneumonia, 35,465; and deaths, 10,741.

It is estimated that there are now at least 200,000 cases of the disease in Virginia, while the estimate for Connecticut was placed at 110,000 up to October 16. Epidemics continue to be reported from various parts of Arkansas, Maryland, Louisiana, Oklahoma and other states.

New York City has a total estimate of about

110,000 cases, according to Commissioner Copeland.

In Boston there is such a considerable decline in deaths that all bans on public places were lifted on the 19th. The deaths from grippe dropped to 71, the lowest figure since September 22. One of the fruits of the epidemic will be a campaign for improved sanitary conditions in the Boston Elevated system, and in the subways. There is still danger in other parts of the State. The latest State report follows: Fall River, 688 cases; Worcester, 445 cases; Lowell, 332 cases, 14 deaths; Taunton, 187 cases, 5 deaths; Somerset, 167 cases; Lawrence, 171 cases; Somerville, 118 cases; Lynn, 111 cases, 18 deaths; Waltham, 109 cases. Walpole has had a total of 246 cases during the epidemic.

Surgeon-General Brooks has accomplished wonderful results from his open-air hospital. The tent-hospitals consist of cubicles to house two patients each; then follows nine feet of space; then another cubicle, and so on. The three sides are let down by day and put up by night.

Nine of the 13 schools and stations in the 1st Naval District reported no new cases. Six of the ten patients in that district are students at the Radio School in Cambridge. There were two at the Aviation School and one each in Boston section base and at headquarters in the Little Building. Enough vaccine has been turned out at the State Laboratory at Forest Hills and at Tufts Medical School for 30,000 applications daily.

The Ayer Board of Health lifted the quarantine against Camp Devens, but the camp order is still in effect.

From 121 cities and towns outside of Boston 5,765 new cases were reported. There have been 3,633 deaths in Boston from influenza and pneumonia since the epidemic started, and more than 200,000 persons have been stricken.

It is estimated that 100,000 men in the Navy have been ill with the influenza, and the death list has been remarkably low.

Fall River leads the State in the number of cases, having 887 in one day. Springfield had 406 new cases and 18 deaths; New Bedford, 318 and 47 deaths; Lynn, 258 and 34 deaths; Worcester, 276; Lowell, 236 and 14 deaths; Adams, 238 and 9 deaths; Pittsfield, 208; Attleboro, 195; Plymouth, 150; Danvers, 101;

Framingham, 103; Lawrence, 76 and 5 deaths; Taunton, 80 and 4 deaths; Brookline, 8; Cambridge, 49 and 15 deaths; Salem, 73; Medford, 31; Somerville, 94; Waltham, 50. Many of the outside nurses have been recalled to their own communities to help fight epidemics in their own towns.

Boston's death rate shows a high mortality as compared with the figures corresponding to the same period of time last year. The following is the list:

	WEEK ENDING 1918		WEEK ENDING 1917	
	Oct. 12	Oct. 5	Oct. 13	Oct. 6
Total Deaths (all causes)	1285	1476	231	185
Native born	763	868	136	109
Foreign born	511	594	92	75
Children under 1 year ...	101	92	26	27
Children under 5 years ..	483	435	113	82
Total deaths, influenza and pneumonia	1027	1216	28	12
Influenza	850	991	0	0
Lobar pneumonia	107	142	13	9
Broncho pneumonia	70	82	10	3
All causes except influenza and pneumonia	258	260	208	173
Tuberculosis	25	33	20	20
Heart Disease	37	34	37	32
Whooping cough	10	15	0	37

Boston had recovered sufficiently from the epidemic to allow the opening of all public places on October 19 at midnight. The ban has existed since September 27.

At Malden only two deaths were reported on October 15, and hospitals are discharging patients.

The State Department of Health gives the following list of cases on October 15:

Ware, 570 cases; Boston, 387 cases, 94 deaths; Fall River, 345 cases, 50 deaths; Taunton, 326 cases, 8 deaths; Lowell, 321 cases, 23 deaths; New Bedford, 307 cases, 22 deaths; Cambridge, 289 cases, 24 deaths; Haverhill, 261 cases; Lawrence, 238 cases, 13 deaths; Fitchburg, 198 cases, 32 deaths; Worcester, 184 cases; Hudson, 147 cases; Lynn, 146 cases; Springfield, 161 cases, 10 deaths; Andover, 124 cases; Holyoke, 116 cases; Webster, 100 cases; Waltham, 132 cases; Westfield, 112 cases.

There is a slight increase among the sailors. Six cases at the Aviator Detachment swell the number to fourteen. At Chelsea the total number of cases in the district is 3,818.

Medford has a marked improvement in the condition of the epidemic of that locality.

New York is taking drastic measures to pre-

vent the spread of the epidemic. Deaths from influenza reported on October 15 totalled 322, and pneumonia fatalities were 366, as against 222 and 236 of the day before. New cases of influenza were 4,925.

There has been high praise for the military camps. Conditions at the camps which have base hospitals show that they are in an excellent state, and that they have already started to prepare for the winter.

Dr. Hammond Bunderston has arrived in Boston from the Chicago City Department of Health to make a study of the methods used here in combating the epidemic. Miss Edith Burleigh, superintendent of the parole department of the Massachusetts State Industrial School for Girls, has been appointed State Supervisor of Medical Social Service.

At Manchester, N. H., influenza cases under treatment have decreased 200 since Oct. 19, and now number 673, with 75 new cases for Oct. 20. Emergency service of all kinds was discontinued Oct. 21, and volunteer assistants to the Board of Health were released. The Board issued an order allowing schools, theatres and picture houses to reopen Oct. 28, and social functions were resumed at the same time. Churches reopened Oct. 20.

Boston is undertaking a second campaign against the epidemic in the way of education, relief work for the benefit of those who are recovering, and home service.

In Chicago the epidemic will be fought with the aid of vaccine originated by Edward C. Rosenow, chief bacteriologist of the Mayo Brothers' Foundation. One million doses will be in the hands of Chicago physicians in a few days. It was tried in Rochester, when 20,000 were inoculated and not one death followed the inoculations, it is reported.

Reports from 33 states showed the spread of the epidemic. Conditions were described as satisfactory in Oregon, Minnesota, West Virginia and Tennessee.

WAR NOTES.

U. S. RED CROSS IN ITALY.—The U. S. Red Cross Unit has established hospitals in Italy at Milan, Rome, Genoa and Florence. They are at the service of any Americans engaged in war service. The United States Red Cross Tuber-

enulosis Unit arrived in Rome on October 11, 1918. It is in charge of Dr. W. C. White of Pittsburgh and Dr. Bishop of Cleveland. There are representatives in the unit from Boston.

OFFICERS KILLED IN FIRE.—Two officers were reported killed and several others injured in a fire which destroyed the officers' headquarters at base hospital No. 3, at Rahway, N. J., on October 10. The fire was confined to the officers' quarters and did not spread to the main hospital building.

GENERAL GORGAS RECALLED TO THE ACTIVE LIST OF THE ARMY.—Recall to the active list of Major-General William C. Gorgas, ex-Surgeon-General of the Army, who recently was retired for age, and his assignment to active duty in the same rank of the Medical Corps, was announced by Secretary Baker. General Gorgas will complete the inspection of medical facilities in France and England, upon which he now is engaged, and then will return to the United States to submit a report. It is possible that his next assignment will take him to Italy.

INFANT MORTALITY HIGH IN PETROGRAD.—Infant mortality in Petrograd has increased 50 per cent., and the juvenile population of the city will practically be wiped out this winter unless food is provided from foreign countries. According to Capt. William B. Webster of the American Red Cross, who has just arrived from Petrograd, starvation is claiming thousands of adults. There are 75,000 homeless children. Captain Webster is trying to coöperate with the Danish Minister in order to feed the children next winter. It is estimated that the number of children who will be public charges before the end of the winter will be 140,000. The cholera epidemic is under control.

AMERICAN HOSPITALS IN THE RIVIERA.—Thirty thousand beds for American convalescent soldiers are being prepared in some of the large hotels at Nice and other points along the Riviera. The medical staff will be all Americans, and most of the nurses will belong to the American Red Cross. The whole chain of hospitals will be under the command of Major W. H. Browne of Detroit. The leases under which the hotels are being taken are made out

for a period extending to one year after the conclusion of the war.

CONDITION OF THE ARMY ABROAD.—Secretary of War Baker is greatly pleased with the progress which the Army has made in France. The supply service is equal to the demands which will be made. No serious outbreak of influenza has occurred among the troops in France. Hospitals of 5,000 to 10,000 beds each and special hospitals for certain forms of relief have been instituted with amazing results. The general condition of the health of the Army is excellent.

APPROPRIATION FOR ARMENIAN RELIEF.—An appropriation of \$9,000,000 as an additional contribution to the American committee for Armenian and Syrian relief was announced by the American Red Cross War Council. People were reported dying in the streets from starvation and from such diseases as typhus and cholera. During the past year the American Red Cross has contributed about \$3,000,000 to the Armenian Committee for relief in the Northeastern countries which had been under Turkish domination.

CONFIRMATION OF GENERAL IRELAND AS SURGEON GENERAL.—The nomination of Major General Ireland as Surgeon General of the Army was approved by the Senate.

PARKER HILL HOSPITAL TAKEN BY GOVERNMENT.—The Parker Hill Hospital property, controlled by the Woman's Charity Club and the Massachusetts Women's Hospital Corporation, will be transferred to the Government. It contains 75 beds and will be made the headquarters for nurses who work in the Robert B. Brigham and the Elks' Hospitals.

NEW ENGLAND WOUNDED IN BOSTON.—Mayor Peters of Boston urges that the New England wounded be brought to Boston instead of to Plattsburg as has been the custom. The west department of the City Hospital has been offered to the service. The property embraces 30 acres of land and is of sufficient area to allow the erection of a large temporary hospital. The Government has been asked especially to grant this request as the weather conditions are so unfavorable for friends and relatives to visit their wounded.

DISCONTINUANCE OF DENTAL LECTURES.—

The public Sunday afternoon lecture course held each year at the Forsyth Dental Infirmary for Children will be discontinued during the coming year, owing to the fact that the chief of the lecture department, Dr. Charles W. Rodgers, has received an assignment to establish a dental school for the Navy. Dr. Rodgers expects to be assigned to the Great Lakes Naval Training School, where, with Dr. Clarence J. Grieves, he will do pioneer work of establishing the naval dental school.

APPOINTMENTS TO MEDICAL RESERVE CORPS.—

The following appointments in the Medical Reserve Corps have been announced by the War Department:

Captains: Dr. Robert Cornelius Robinson, Providence; Dr. Robert L. Guiler, Boston; Dr. Millard C. Webber, Portland, Me.

First Lieutenants: Dr. Emile D. Miville, Manchester, N. H.; Dr. Richard W. Sheehy, Winchester, Mass.; Dr. Dennis James Carroll, Vergennes, Vt.; Dr. Everett Leon Chapman, Dover, N. H.; Dr. Chester McLoon Wiggin, Conway, N. H.

BOSTON AND MASSACHUSETTS.

TYPHOID FEVER IN BEVERLY.—Three new cases of typhoid fever were reported to the Board of Health at Beverly. More than half of the former victims took milk from one Beverly milkman, and the suspected source of supply at Ipswich was cut off. There are also several patients suffering from typhoid and influenza at the same time.

HOSPITAL BEQUESTS.—The late James J. Corbett of Boston has left bequests of \$5,000 to the Carney Hospital and \$2,000 to the Little Sisters of the Poor. Upon the death of the beneficiaries the trustee is directed to distribute the principal sum equally between the Carney Hospital, the Little Sisters of the Poor and the New England Home for Little Wanderers.

Miscellany.
BULLETIN ON SPANISH INFLUENZA.

The Surgeon General of the United States Public Health Service has just issued the following publication* dealing with Spanish influ-

enza, which contains all known available information regarding this disease. Simple methods relative to its prevention, manner of spread, and care of patients, are also given. Readers may obtain copies of this pamphlet free of charge by writing to the "Surgeon General, U. S. Public Health Service, Washington, D. C."

**"SPANISH INFLUENZA"—"THREE-DAY FEVER"
"THE FLU."**

What is Sanish Influenza? Is it something new? Does it come from Spain?

The disease now occurring in this country and called "Spanish Influenza" resembles a very contagious kind of "cold" accompanied by fever, pains in the head, eyes, ears, back or other parts of the body, and a feeling of severe sickness. In most of the cases the symptoms disappear after three or four days, the patient then rapidly recovering; some of the patients, however, develop pneumonia, or inflammation of the ear, or meningitis, and many of these complicated cases die. Whether this so-called "Spanish" influenza is identical with the epidemics of influenza of earlier years is not yet known.

Epidemics of influenza have visited this country since 1647. It is interesting to know that this first epidemic was brought here from Valencia, Spain. Since that time there have been numerous epidemics of the disease. In 1889 and 1890 an epidemic of influenza, starting somewhere in the Orient, spread first to Russia, and thence over practically the entire civilized world. Three years later there was another flare-up of the disease. Both times the epidemic spread widely over the United States.

Although the present epidemic is called "Spanish Influenza," there is no reason to believe that it originated in Spain. Some writers who have studied the question believe that the epidemic came from the Orient and they call attention to the fact that the Germans mention the disease as occurring along the eastern front in the summer and fall of 1917.

How can "Spanish Influenza" be recognized?

There is yet no certain way in which a single case of "Spanish Influenza" can be recognized; on the other hand, recognition is easy where there is a group of cases. In contrast to the outbreaks of ordinary coughs and colds, which usually occur in the cold months, epidemics of influenza may occur at any season of the year, thus the present epidemic raged most intensely in Europe in May, June, and July. Moreover, in the case of ordinary colds, the general symptoms (fever, pain, depression) are by no means as severe or as sudden in their onset as they are in influenza. Finally, ordinary colds do not spread through the community so rapidly or so extensively as does influenza.

* Public Health Supplement No. 34, September 28, 1918.

In most cases a person taken sick with influenza feels sick rather suddenly. He feels weak, has pains in the eyes, ears, head or back, and may be sore all over. Many patients feel dizzy; some vomit. Most of the patients complain of feeling chilly, and with this comes a fever in which the temperature rises to 100 to 104. In most cases the pulse remains relatively slow.

In appearance one is struck by the fact that the patient looks sick. His eyes and the inner side of his eyelids may be slightly "blood-shot," or "congested," as the doctors say. There may be running from the nose, or there may be some cough. These signs of a cold may not be marked; nevertheless the patient looks and feels very sick.

In addition to the appearance and the symptoms as already described, examination of the patient's blood may aid the physician in recognizing "Spanish influenza," for it has been found that in this disease the number of white corpuscles shows little or no increase above the normal. It is possible that the laboratory investigations now being made through the National Research Council and the United States Hygiene Laboratory will furnish a more certain way in which individual cases of this disease can be recognized.

What is the course of the disease? Do people die of it?

Ordinarily, the fever lasts from three to four days and the patient recovers. But while the proportion of deaths in the present epidemic has generally been low, in some places the outbreak has been severe and deaths have been numerous. When death occurs it is usually the result of a complication.

What causes the disease and how is it spread?

Bacteriologists who have studied influenza epidemics in the past have found in many of the cases a very small rod-shaped germ called, after its discoverer, Pfeiffer's bacillus. In other cases of apparently the same kind of disease there were found pneumococci, the germs of lobar pneumonia. Still others have been caused by streptococci, and by other germs with long names.

No matter what particular kind of germ causes the epidemic, it is now believed that influenza is always spread from person to person, the germs being carried with the air along with the very small droplets of mucus, expelled by coughing or sneezing, forceful talking, and the like by one who already has the germs of the disease. They may also be carried about in the air in the form of dust coming from dried mucus, from coughing and sneezing, or from careless people who spit on the floor and on the sidewalk. As in most other catching diseases, a person who has only a mild attack of the disease himself may give a very severe attack to others.

What should be done by those who catch the disease?

It is very important that every person who becomes sick with influenza should go home at once and go to bed. This will help keep away dangerous complications and will, at the same time, keep the patient from scattering the disease far and wide. It is highly desirable that no one be allowed to sleep in the same room with the patient. In fact, no one but the nurse should be allowed in the room.

If there are cough and sputum or running of the eyes and nose, care should be taken that all such discharges are collected on bits of gauze or rag or paper napkins and burned. If the patient complains of fever and headache, he should be given water to drink, a cold compress to the forehead, and a light sponge. Only such medicine should be given as is prescribed by the doctor. It is foolish to ask the druggist to prescribe and may be dangerous to take the so-called "safe, sure, and harmless" remedies advertised by patent-medicine manufacturers.

If the patient is so situated that he can be attended only by some one who must also look after others in the family, it is advisable that such attendant wear a wrapper, apron, or gown over the ordinary house clothes while in the sick room, and slip this off when leaving to look after the others.

Nurses and attendants will do well to guard against breathing in dangerous disease germs by wearing a simple fold of gauze or mask while near the patient.

Will a person who has had influenza before catch the disease again?

It is well known that an attack of measles or scarlet fever or smallpox usually protects a person against another attack of the same disease. This appears not to be true of "Spanish influenza." According to newspaper reports the King of Spain suffered an attack of influenza during the epidemic thirty years ago, and was again stricken during the recent outbreak in Spain.

How can one guard against influenza?

In guarding against disease of all kinds, it is important that the body be kept strong and able to fight off disease germs. This can be done by having a proper proportion of work, play, and rest, by keeping the body well clothed, and by eating sufficient, wholesome, and properly selected food. In connection with diet, it is well to remember that milk is one of the best all-round foods obtainable for adults as well as children. So far as a disease like influenza is concerned health authorities everywhere recognize the very close relation between its spread and overcrowded homes. While it is not always possible, especially in times like the present, to avoid such overcrowding, people should consider the health danger and make every effort to reduce the home overcrowding to a minimum. The value of fresh air through open windows can not be over emphasized.

Where crowding is unavoidable, as in street cars, care should be taken to keep the face so turned as not to inhale directly the air breathed out by another person.

It is especially important to beware of the person who coughs or sneezes without covering his mouth and nose. It also follows that one should keep out of crowds and stuffy places as much as possible, keep homes, offices, and workshops well aired, spend some time out of doors each day, walk to work if at all practicable—in short make every possible effort to breathe as much pure air as possible.

EPIDEMIC INFLUENZA.*

(SPANISH INFLUENZA.)

AN acute infectious disease (epidemic influenza) has prevailed in Europe this year similar in many respects to the disease which prevailed in pandemic form in the winter of 1889-90. It seems probable that in 1918, as in 1889-90, the earliest appearance was in eastern Europe. By April cases were occurring on the western front. In Spain, according to reports, 30 per cent. of the population were attacked in May. The 1889 epidemic, starting in northern Europe, also fell heavily on Spain; the present ruler, then 3 years old, being one of the first attacked in Madrid. The King of Spain is said also to have been attacked in the present epidemic. The epidemic of 1918 was at its height in Germany in June and July. It has appeared in practically every section of Europe. In England the epidemic prevailed in May, June, and July.

Outbreaks have been reported from various sections of the United States, but the spread has been by no means so rapid as in 1889, when the disease occurred in America almost simultaneously with its appearance in western Europe.

In the absence of a clean-cut symptomatology, distinct from that of other diseases, and of any criterion, such as a proved causative organism, demonstrable in the tissues of the patient or his discharges, it is difficult to make diagnosis in individual cases apart from an intense prevalence of the disease. It is likewise impossible for us to assert or deny the unity of this epidemic with that of 1889-90. The marked difference in season is notable. In 1889 the first outbreak occurred in St. Petersburg during October; in Berlin and Paris, during November; in Brussels, Copenhagen, London, Vienna, Rome, Madrid, Boston, New York, and Philadelphia, during December, persisting in each place for one or two months. In 1918 the heavy incidence has been in summer, but the duration in any one focus, the general character of the disease, its tendency to spread

along routes of travel, and the enormously high case incidence have been similar in the two pandemics.

The identity of the present outbreak with outbreaks in other years is even more uncertain.

Hippocrates and Livius refer to an epidemic in 412 B. C., which is regarded by many to have been influenza. Since ancient times, epidemics somewhat similar to the present outbreak have been recorded in the twelfth and thirteenth centuries, 4 in the fourteenth, 5 in the fifteenth, 8 in the sixteenth, including the pandemics of 1510 and 1580, 8 in the seventeenth, 20 in the eighteenth, and 14 in the nineteenth century, including the pandemics of 1831, 1833, 1837, 1847-48, and 1889-90. After the pandemic of 1847-48, there appears to have been a considerable pause before the pandemic of 1889-90 appeared "like a thunder cloud from the east," as Beek puts it. Following this pandemic, high incidence of epidemic influenza was reported during the winters of 1891 to 1894, 1907-8, and 1915-16.

The symptoms in the present pandemic have been an acute onset, often very sudden, with bodily weakness and pains in the head, eyes, back, and elsewhere, in the body. Vomiting may be a symptom of onset and dizziness is frequent. Chilly sensations are usual, and the temperature is from 100° to 104°, the pulse remaining comparatively low. Sweating is not infrequent. The appetite is lost, and prostration is marked. Constipation is the rule. Drowsiness and photophobia are common. The conjunctivae are reddened, and the mucous membrane of the nose, throat, and bronchi often give evidence of inflammation. The general symptoms, however, predominate over the local. Cervical and general lymphadenitis and nystagmus have been reported to be very frequent by certain observers. Characteristically, there is no leucocytosis during the height of the fever, so that a high white count during the first 60 hours is indicative of another disease or of complication. The fever usually lasts from three to five days; but relapses are not uncommon, and complications, particularly pulmonary, are to be feared. The death rate is usually given as extremely low; but in the latter periods of an outbreak an increased number of deaths, presumably due to complications, has been reported in Spain and in the United States. Besides bronchitis and pneumonia, inflammation of the middle ear and cardiac weakness may follow the disease.

Epidemic influenza may vary in type in different places; thus diarrhea was said to be frequent in Spain. It is to be supposed that in some places aberrant types may be found, but, in the absence of a definite criterion for diagnosis, it is impossible to affirm this with certainty.

In its onset, epidemic influenza may stimulate almost any of the acute infectious diseases,

* Supplement No. 33 to the United States Public Health Reports, September 27, 1918.

but in the civil population it must be differentiated chiefly from an ordinary coryza or bronchitis, from cerebrospinal fever, and from such conditions as the glandular fever of children. In the usual coryza or bronchitis the general symptoms are by no means so severe or so sudden in appearance as in epidemic influenza, and the spread of these infections through a community is not so complete. Even in the absence of an outbreak of epidemic meningitis, the symptoms mentioned as typical of influenza, if combined with a stiff neck or Kernig's sign, would justify a lumbar puncture. A negative result with the lumbar puncture or the absence of a leucocytosis would indicate that meningitis was not present. Glandular fever is limited to children; other ephemeral fevers have not occurred in widespread fashion. The short course of the fever (always less than seven days) in uncomplicated influenza is thus an aid in diagnosis.

The incubation period is probably as a rule very short, though with such universal prevalence this is hard to verify. All ages are attacked, young active adults being especially susceptible. In Germany there has been such a preponderance of cases among the young that it is supposed that the 1889 epidemic conferred an immunity on most of those at present over 30 years of age. This has not been observed elsewhere.

All evidence points to human contact as being the means of spread, and from the local symptoms it has been assumed that the nose and throat have been the points of egress of the virus and the points of inoculation. There is nothing to show that other animals have any part in carrying the disease.

Discussion as to the etiology of the disease has been chiefly concerned with the question whether the influenza bacillus of Pfeiffer (1892) is the specific causative factor. This organism offers difficulties in recognition, cultivation, and identification, and it may be that the failure to find it in the last pandemic and the failure of many bacteriologists of standing to demonstrate it in present pandemic are due to these difficulties. It is certainly found outside of epidemics, that we can not regard its absence at present as indicating that the disease is not epidemic influenza. For the present the diagnosis must be clinical rather than bacteriological. Streptococci and other diplococci, some similar to or identical with the micrococci catarrhalis, have been reported as very frequent in the nose and throat of patients. Pneumococci and bacilli of the Friedlaender group have been found in complicated cases. The mere predominance of a certain organism in the respiratory tract can not be accepted as proof that it causes the disease. It may be that the actual causative factor is a filterable virus.

The treatment is symptomatic. On account

of cardiac weakness, rest in bed should be prolonged after defervescence in proportion to the severity of the case. Attention to cleanliness of the mouth, adequate ventilation, avoidance of exposure to cold, and isolation from those who may be carriers of virulent pneumococci and streptococci are measures advisable to prevent complications. Aspirin or similar remedies may be used to relieve headache and general pains. Watch should be kept for complications, and cases should not be discharged too early.

Crowded offices, and particularly street cars, are potent factors in the spread of the disease. In Berlin the street car conductors showed an exceptionally high incidence. The avoidance of street cars and of crowds, where possible, is therefore to be urged during an epidemic, although the disease is too mild to make it advisable to stop all the activities of a city. To prevent the transportation of the influenzal virus to the well and possible causes of complications to the sick, masks for sick-room attendants are advisable. The organism is probably short lived outside the body, and attention should be directed toward keeping people apart rather than toward the disinfection of things, aside from the precautions of general cleanliness. The spread of streptococcus pneumonia in military camps, and the fear that with the advent of cool weather severe pulmonary complications will follow influenzal attacks more frequently than during the past summer, indicate the urgent need for the adoption of more stringent precautions to prevent such complications than have been customarily taken hitherto.

The most dangerous form of human contact in the presence of epidemic influenza is, in all probability, that with coughers and sneezers. Coughing and sneezing, except behind a handkerchief, is as great a sanitary offense as promiscuous spitting, and should be equally condemned.

Correspondence.

DEATH OF MISS COLBY.

Boston, 17 October, 1918.

Mr. Editor:—

It is eminently fitting that the physicians of Boston should take some notice of the death of that quite remarkable person, Miss Jennie M. Colby, who so long and so devotedly served the interests of the sick, as masseuse, and who was always so loyal an advocate of the principle that all therapeutic measures, although applied by another person—no matter how skilful—should be under the constant supervision of the doctor in charge.

Miss Colby was born in Saybrook, Conn., in, or about, the year 1859. She numbered among her ancestors five great-uncles prominent in the educational world, two of them being presidents of colleges. Her education was received partly in Saybrook, but chiefly in the Perkins Institution for the Blind, from which she was graduated in 1883, for she suffered from a heavy handicap in the form of a serious impairment

of vision which, in the case of many a person of less strong character, would have been prohibitive of labors and enterprises such as she undertook and successfully carried through. She worked up to the very last day of her life, dying suddenly and alone, presumably from apoplexy, on September 16, 1918.

She studied her massage and gymnastics mainly under Dr. Douglas Graham and the late Baron Posse, for both of whom she had a high respect. In 1883 she set up for herself, and from then on she practised her art with a single-minded devotion to the interests of her patients, the wishes of the physician and the advancement of her chosen and important work. It was my good fortune to make her acquaintance early in her career, and to have her coöperation in a great many cases, and I aver with pleasure that over and above the benefits which she brought to my patients by her skill, her faithfulness and her personality, she also inspired in me, whether I would or no, something of her own sense of obligation. Indeed, a person of finer character I have rarely seen. She was always studious, intelligent and discriminative, of a happy and contented disposition, and blessed with a number of good friends.

It is worth recording, also, that Miss Colby was, to a great extent, the parent of hydrotherapeutics in this city, although in this respect our efforts went hand in hand. Our first essays in this direction were made, if I remember rightly, not long after the publication by Dr. Mary Putnam Jacoby of New York of an interesting paper in which she warmly advocated the use of wet packs, followed by massage, in the treatment of anemia. I suggested to Miss Colby to try these packs on behalf of a lady living in one of the hotels in Boston—so many years ago that I should hesitate to estimate the number. This first attempt proved eminently satisfactory, and, from then on, Miss Colby worked up the various water treatments—at first only in so far as this could be done simply in private houses, afterward in a miniature establishment which she organized in her own apartments on Newbury Street. Finally, she moved to a large gymnasium in the Farragut Building, a portion of which was fitted up with complete hydrotherapeutic apparatus, and this has remained, up to the present day, as the home of the well known "Medical Baths" which still fill a very useful place. It was evident from the first that this enterprise would not be a lucrative one, but to Miss Colby that was an entirely secondary consideration. She thought that the two modes of treatment, the physical and the hydrotherapeutic, ought to be combined, and she devoted herself whole-heartedly to combining them.

Her best professional skill was ardently devoted to the children in the Out-Patient Department of the Children's Hospital. To this work she gave her services—of course without payment—two afternoons a week for twenty-five years.

But it was not only as an actual practitioner in massage and exercises that Miss Colby won her reputation. For a number of years she carried on a gymnasium in which she had a number of pupils who have become well known to the profession ever since; and I believe that all of them have continued to hold the same opinion of her that I have held.

She was not by any means a purely passive person, but a determined advocate of what she thought was right and ready to oppose vigorously, if necessary, those whom she believed were on the wrong track. It was with no lax good nature but with the true missionary spirit that she would work sometimes, for some special patient, for months, day after day, with no expectation of payment, and she richly deserves to have it said of her, "Well done, good and faithful servant."

NOTE:—Miss Colby was the author, either alone or with others, of several valuable publications. The most important of these was "The Educational Gymnastic Play," written by Fannie L. Johnson and Jennie M. Colby, a book of practical directions, eighty pages in length, describing excellent exercises and games for children, in considerable detail.

JAMES J. PUTNAM, M.D.

FREE GOVERNMENT RADIO SCHOOL.

Department of Commerce, Navigation Service,
Office of Radio Inspector, Custom House, Boston.
September 30, 1918.

Mr. Editor:—

This office is conducting a free government radio school in the Naval Militia Armory, Mechanics Building, 97 Huntington Avenue, Boston, on Monday, Wednesday and Friday evenings, 7 to 9 p.m.

An unlimited number of radio operators is required in special branches of both Military and Naval service, and all men subject to selective service law should avail themselves of this advance training, which will be of material assistance to them when called. Special preference of enrollment will be given to men of Class 1, Div. A, or those having necessary qualifications for enlistment in any branch of Army or Navy.

The instruction consists of two hours' practice in International Morse code. Facilities permit the instruction of 275 men, and registrants are received continually, upon approval of application and condition of regular attendance.

Enrollment must be made in person at the office of Radio Inspector, 7th floor, Custom House, Boston, and applicants must furnish proper evidence of registration, classification and birth. When duly qualified, students will receive certificates of proficiency authorized by the Government, and accepted by military and naval departments.

Respectfully,

ARTHUR BATCHELLER, *Radio Inspector.*

CORRECTIONS.

536 Commonwealth Ave., Boston.

Mr. Editor:—

In the JOURNAL of October 17, 1918, in the section of Correspondence, under the caption "Hearing Tests," in the sixth line of the second paragraph insert after the word "alike," "or well in one ear and fainter in the other at a given distance."

In the line before the last of the same paragraph, put "seventy-five cent." in quotations.

In the first line of the last paragraph, put the word "air" in place of the word "hearing."

Yours truly,

JOS. PRENN, M.D.

TIME-CROWDING AS A FACTOR IN INFLUENZA.

Portsmouth, N. H.,

October 17, 1918.

Mr. Editor:—

I read in the Boston papers the statement made by Dr. William A. Brooks about the influenza epidemic. If I understand Dr. Brooks aright, he seems to ascribe the epidemic to the crowded condition of ships,—vitiated air and lack of sunshine. Permit me to ask, through the columns of your JOURNAL, a few questions which may possibly prove of some practical interest:

Are we to regard the present epidemic as being *mainly* the result of crowded ships? Should lack of fresh air and absence of sunshine be *alone* considered as the principal factors of the influenza and pneumonia plague which ravages the country from shore to shore? Are not there other factors equally important? Is it not biologically true that where organisms are *suddenly* exposed to intense exertion, overstrain, exhaustion, fatigue, cold, etc., that they become reduced in vitality, that the general resistance to infection is lowered, and that they are apt to fall easy victims to invasions by pathogenic micro-organisms? May we not in our present plight take such

factors into consideration? May it not be quite possible that we have also to count with fundamentally predisposing conditions such as overstrain, exhaustion, fatigue, exposure to cold, etc., due to the sudden, quick hardening process of severe training and drilling of millions of young men unused to hardships and exposures, unable to react and be adapted suddenly to the conditions of intensive training fit for hardened constitutions of veterans who are sifted by the natural process of the survival of the fittest? Is it not quite probable that we may have to count here with the results of such a fundamental factor as the intensive process of raising armies of young adults in the briefest possible time, in a few months, in a few weeks? May we not expect that nature exacts its full reckoning for the feverish activity of obtaining quick results.

Have not Spencer, Clouston, James and others warned this nation against its "breathless hurry," "painful tension," convulsive eagerness, and, more especially against its intense "solicitude for quick results"? Have we ever paid heed to the warnings of those great men?

In this supreme moment of national life may it not be the sacred duty of the medical man to sound a warning note of danger against any intensive process of work and training, against sudden hardening and exposure of millions of our young generation? May it not be well and practical to take critical account of our methods of work, methods which may possibly defeat the ultimate purpose of a vigorous and healthy national life? May it not be quite probable that in the hurry of getting quick results, by intensive training and hardening, we really exhaust and waste the energies of our young people, drain the valuable sources of our national man-power, and expose the nation to serious dangers of wide-spread epidemics and virulent plagues?

If Dr. Brooks finds it necessary to point out the dangers of *crowding in space*, may not the medical profession find it requisite to warn the nation against the still greater dangers of *crowding in time*? Is it not probable that the medical profession may perform a great and lasting service to the country in this present hour of need, if, with the greatest thinker of all ages, Aristotle, special stress is laid on the principle of *moderation*?

Yours fraternally,

BORIS SIDIS.

VOLUNTEER MEDICAL SERVICE CORPS, COUNCIL OF NATIONAL DEFENSE.

Washington, October 16, 1918.

From Volunteer Medical Service Corps,
Council of National Defense.

To Members of State Executive Committees and County Representatives, Volunteer Medical Service Corps.

Subject Influenza Epidemic.

1. In view of the present serious epidemic which is sweeping over the country, the Volunteer Medical

Service Corps earnestly invites your attention to the following important action:

Urge upon the members of the Volunteer Medical Service Corps that they instruct families under their care to guard against the epidemic by:

Thorough cleanliness of houses, premises, clothing and utensils, and personal cleanliness.

Avoid stirring up dust.

Wash, scrub, flush, sprinkle and use soap and water thoroughly.

Gargle and spray the nose and throat with an alkaline antiseptic fluid frequently.

Coöperate at once to the fullest extent with the local, State and national boards of health. Urge and coöperate in preparing towns and cities for the epidemic by establishing emergency hospitals in suitable buildings, by districting communities, and apportioning or dividing medical forces comprising men and women physicians and nurses so that no portion of the community is without medical care.

Circulate as thoroughly as possible and explain to the public the warning and directions printed by the United States Public Health Service and by local health authorities.

Urge the importance of fresh air and the avoidance of chill and overheat.

In fighting the epidemic give no medicine and use no treatment which may depress the vital forces, especially the heart of the patient.

2. The Army and Navy are fighting and conquering Germans. We must fight and conquer germs without taking anything away from the Army and Navy. Don't ask the Army and Navy for medical and surgical supplies. Use simple utensils for sterilizing, the simplest kinds of beds and bedding, make your own masks and dressings, and fight for yourselves.

3. While the epidemic is on, do no surgical operations unless absolutely necessary to save life.

4. In every way in your power urge the members of the Volunteer Medical Service Corps to coöperate to the fullest extent with the United States Public Health Service and with State and local health authorities.

EDWARD P. DAVIS, *President*,

Volunteer Medical Service Corps.

RECENT DEATH.

CHARLES S. CAVERLY, M.D., Professor of Hygiene in the University of Vermont College of Medicine, and President of the State Board of Health since 1891, died, on October 16, in Rutland, Vt. Dr. Caverly was widely known as a specialist in infantile paralysis. He was born in Troy, N. Y., and was graduated from Dartmouth in 1878, and from the University of Vermont College of Medicine in 1881. He was director and attending physician of the Rutland Hospital and consulting physician of the Proctor Hospital. He had been a trustee of the Vermont Tuberculosis Sanatorium and became a member of the State Board of Health in Vermont in 1890, and its president a year later. He belonged to the American Medical Association, the Vermont State Medical Society and the American Public Health Association.

The Boston Medical and Surgical Journal

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Original Articles.

NEUROSES AMONG RETURNED SOLDIERS. TYPES AND INDICATIONS.*

BY CAPTAIN CLARENCE B. FARRAR, C.A.M.C., OTTAWA.
Psychiatrist to the Military Hospitals Commission of Canada.

PSYCHONEUROTIC reactions resulting from warfare may be considered conveniently in two groups:—first, acute states developing at the front and presumably reactive in the main to the actualities of trench fighting, chief among which is of course the concussion syndrome; second, conditions observed in base hospitals or after the men have been invalided home, including persistent syndromes which began at the front and also those subsequently elaborated.

The present discussion concerns itself with the second group, comprising members of the C. E. F. who have been returned from France because of nervous disabilities. The principal types of such disabilities will be referred to briefly; and further some of the larger lessons of experience in dealing with them, which may be profitable not only for medical officers but quite as well for the public at home.

Let me say by way of preface that the data

here made use of have been collected under the authority and direction of the Military Hospitals Commission of Canada,* who have pursued a policy of placing at the disposal of all rightful enquirers such information as they have accumulated, whether such information reflects achievements to be emulated or errors to be avoided.

When Canada was caught by the avalanche of war, totally unready as she was, there was but one thought,—to get the greatest number of men overseas in the shortest possible time. She was still laboring single-minded to that end when casualties began pouring back, and again she was hardly prepared.

If during six months after the war was brought to our own shores 400,000 American soldiers have been sent overseas, the United States has done, with respect to the supply of man-power, exactly what Canada did within six weeks after the call came from England in August, 1914. Canada could not sit, note-book in hand, for three years and watch and learn as we have learned at her expense. She has

* With the reorganization of the Medical Services in Canada, in April, 1918, the Military Hospitals Commission, as originally created by Order-in-Council, ceased to exist and its work was divided. That part dealing with returned invalids not yet discharged from the service was taken over by the Army Medical Corps; the other branch, dealing with the disabilities of discharged men, and including vocational re-education, remained under the jurisdiction of the Commission—since called the Invalided Soldiers' Commission—which became a branch of the new department of Government then created, namely the Department of Soldiers' Civil Re-establishment.

* Paper read at the Symposium on Psychiatry and War held by the New York Psychiatric Society, Dec. 5, 1917.

learned at her own bitter cost, and we from this side of the border still go to enquire of her.

From the beginning of the war to November 1, 1917, approximately 30,000 Canadian soldiers were returned home from overseas, most of them medically unfit. About 3600 of these (12%) belong to the nervous and mental group, the composition of which is indicated in the following table:

NERVOUS AND MENTAL DISEASES AMONG RETURNED
SOLDIERS OF THE C. E. F.

1. Neuroses	50%
2. Psychoses	18%
Defect states	
3. Head injury	13%
4. Epilepsy	8%
Epileptiform	
Alcoholism	6%
5. Drug habit	
Undesirables	5%
6. Neurological	
Miscellaneous	
	100%

Deferring for a moment discussion of group 1, it is necessary to comment briefly upon the remaining five groups.

Psychoses and Defect.—In this group the two conditions are taken together. The figures are necessarily compiled for the most part from medical boards, and perusal of these does not as a rule permit of distinction between the two types.

In this connection two highly important considerations suggest themselves. (1) The necessity for special psychiatric boards to deal from the start with nervous and mental cases. (2) The scarcely less urgent need of a uniform and if possible fool-proof nomenclature. When general boards sit for the examination of all types of disability and without a standardized and workable scheme for recording findings, all sorts of discrepancies are bound to occur. One M. O. looking for a physical basis for all disabilities will overlook various functional nervous disorders, while another of different temperament will unduly expand the diagnosis,—neurasthenia. Similarly, widely divergent mental conditions may come to be called by the same name, while similar conditions may be designated by the greatest variety of terms. It has fortunately been possible in the American organization to accord to these facts due recognition at the outset.*

Among mental diseases dementia praecox

comes conspicuously first. Next, and also relatively numerous are the various grades of primary mental defect. Manic and depressive attacks appear to be relatively uncommon, the latter being the more frequent of the two. Occasionally a benign stupor is met with.

According to our data *paresis* and allied conditions are rare in the Canadian Army. Out of the total of 30,000 returned men we found as follows:

Paresis (diagnosis established or probable)	31
Tabes (diagnosis established or probable)	25
Tabo-paresis	3
Cerebro-spinal lues	7
	66
Paresis suspects	23
Tabes suspects	2
	25

Unfortunately it has not yet been possible to check up all these cases which are scattered about Canada. A certain number of diagnostic errors of both sorts must be allowed for. They will perhaps balance each other.

All of the cases of established or probable paresis and tabes taken together make up about 1.5 of 1% of the total disabilities. Including the suspects, which will probably make the estimate reasonably large, we get only .3%.

So far as our evidence goes the incubation period is not shortened. In seventeen cases of paresis and tabes in which the records supplied dates, the average period between specific infection and appearance of symptoms was 13 to 14 years.

As might be expected a phase of trench neuritis may complicate practically any mental condition. With regard to paresis, initial errors in diagnosis have been made by regarding early cases at the front as neurasthenia, shell shock and occasionally epilepsy.

One case first attracted attention by his care-free recklessness and apparently fool-hardy exposure, utterly disregarding danger. Thus far we have met with but two other types who passed through the ordeal of the trenches without evidence of fear, Hypomanias, for example, may undertake with relish the most hazardous exploits, rushing in where angels and devils alike might reasonably fear to tread. On the other hand, the hebephrenic, though he does not start things or court danger, may remain placid and unmoved whilst death is striking all about him. We have had among our patients reae-

* The Surgeon-General of the United States Army has adopted the nomenclature approved by the American Medico-Psychological Association at its 1917 meeting.

tions such as these. It is true they are only occasional instances, but I have yet to hear of any such immunity to fear in a normal soldier.

Head Injury.—Group 3, being composed of traumatic cases in which nervous symptoms are as a rule, directly determined by the injury, might be omitted from a classification of strictly neurotic or psychotic states. For the sake of completeness it has been included.

The observation has become banal that typical war neuroses have no tendency to appear in association with severe injuries, even when those injuries involve the central nervous system. The reasons for this mutual exclusiveness have been widely recognized and discussed.¹

The rule is, of course, not without exception, but the exceptions serve to verify the rule. It cannot be expected that bullet and shell will selectively strike only those of sound nervous constitution. In a number of cases of severe physical injury with associated neurosis the neuropathic habitus has been demonstrable. It is also to be noted that patients with trifling scalp wounds which medical boards set down as no cause for disability many times complain of the same symptoms as men with grave head injuries involving loss of portions of the skull. These subjective symptoms are not always easy to account for at once: for example, when a man with a scalp wound in the right parietal region complains of numbness in the right arm.

Epilepsy.—This is a difficult group to evaluate. There are three things to be said. In the first place, a certain number of epileptics are bound to get on the strength, no matter how careful the examination of recruits. Secondly, military service is notoriously prone to bring out latent spasmophilic tendencies. Thirdly, a considerable number of men invalided as epileptics are something else. Even cases accompanied by certificates to the effect that typical convulsions have been observed, not infrequently turn out to be functional neuroses. Occasionally the clue is furnished by an entry somewhere in a medical history sheet stating that a seizure lasted for a half hour or an hour. Rarely a spasm occurring at the front and to all intents and purposes epileptic, constitutes the first overt symptom of paresis.

Alcoholics, Undesirables.—The group is a somewhat heterogeneous and happily a small

one. Undoubtedly practically all here included belong in the list of abnormal characters; although the available data do not encourage an attempt to carry through a differentiation of types.

With regard to alcohol it may be stated that this factor has played a very insignificant rôle as a cause of invalidism among Canadian soldiers sent home. Among slightly more than 24,000 returned men it was possible to find only 91 cases (.37%) in which alcohol was either a primary or secondary factor in the disability. This is not by any means saying that 91 is the total number of men who might be said to have drinking habits, or who might indeed upon occasion be found under the influence. If among round 25,000 soldiers there were less than a hundred who ever got drunk, the spirituous morality of the army would assuredly far exceed anything known in civil life. The figure merely indicates approximately the number of cases in which alcoholism became a cause of unfitness for military service, or could be considered as a factor in the invaliding disability.

An inspection of these ninety-one cases is of interest. Habitual drinking previous to enlistment was noted in the histories of 84. The causes of the drink habit may be explained by some further figures. Sixty-five were cases of chronic mental disease or developmental defect; the mental disability in either case long antedating enlistment. Four others exhibited a neurotic constitution. Three were psychopaths. Two had organic nervous disease.

At least 12 of the 91 cases had been in hospitals for insane in earlier life. One had been discharged from the U. S. Army as an habitual alcoholic, and another had deserted from the same service. One had been discharged from the Imperial Army some years previously as a mental case.

Neurological, etc.—In this small group are included certain organic conditions such as multiple sclerosis, brain tumor, and tabes; as well as a few choreas, exophthalmic goitre cases with prominent nervous symptoms and certain obscure cases of D. A. H. Peripheral nerve injuries and lesions have not been taken into account in the present survey.

Functional Neuroses.—We revert now to the first group which is probably larger than all the others put together. The boundaries of this group are especially difficult to define but

¹ Salmon: War Neuroses. *The Military Surgeon*, December, 1917.

the estimate of 50% of the total nervous and mental disabilities is certainly conservative.

A neurotic reaction, more or less marked, is likely to be observed in a very considerable proportion of war disabilities, more conspicuously the fresher the cases are from the front. In the case of minor wounds or illnesses with recovery without directly resulting disability, an associated nervous reaction may become the actual cause of unfitness for further service. In other cases with symptoms referable to this or that organ, a medical board may not find it possible to determine whether the disability is an actual physiological derangement or a functional nervous reaction. Cases of these types recur by hundreds and contribute to the uncertainty of the boundaries and size of the group of functional neuroses.

In considering the symptomatology of the group, as a whole, and omitting discussion of transitory concussion syndromes and other possible acute states reactive to field conditions, we observe among returned men but two general types:

1. Neurasthenic States.
2. Hysterie States.

These two types present nothing particularly distinctive as compared with similar neuroses in civil life. We recognize in general that *hysterie* symptoms are likely to be of sensorimotor character; that they develop, as a rule, suddenly and spectacularly, and affect by preference the younger individuals and those who have seen short service at the front.

Neurasthenic conditions, on the other hand, more true to name, are likely to represent real nervous exhaustion developing gradually without striking phenomena, affecting all classes, especially the older men or veterans who have seen much service. The symptoms are of the more general somatic variety.

The neurasthenia problem is one by itself and one which is bound to demand increasing attention. Neurasthenia is the common diagnosis in the case of invalids with "no apparent disability." As the war wears on this diagnosis tends to multiply. In the earlier days the more dramatic phases of "shell shock" were dominant.

In the group which may be called the *somato-neuroses* we find the points of contact between nervous and physical disabilities; and in hurried medical boards it may be largely a ques-

tion of the state of mind and feelings of the medical officer as to whether a case will be ticketed as neurasthenia or as gastro-intestinal disorder, D. A. H., myalgia or something else, according to the symptoms displayed.

Remembering the pathophilic tendencies of such a large proportion of mankind, it is not surprising that the phenomena of *subjective exaggeration* and *perseveration* should be enormously increased in the war neuroses. In minor injuries and disabilities, following infections or what not, original symptoms, such as pain, weakness, limitation of movement, etc., may continue simply as morbid habits long after their causes have entirely disappeared, in some cases apparently indefinitely if not treated.

INDIVIDUAL TYPES OF WAR NEUROSES.

The following characteristic examples may be briefly indicated.

CASE 1.—Tremor-fixation.—Young man of average mentality; machinist's apprentice. Age 20 on enlistment, August, 1915. He reached France one year later, August, 1916, and was invalided with "Shell Shock" the following month. By October he was in hospital in England, and reached Canada April, 1917.

His disability was then practically monosymptomatic, consisting of rhythmic shaking tremor of right hand and forearm. There was no paralysis, muscular weakness or atrophy; no trophic disturbance. The patient did not, however, raise the extended arm above horizontal. The tremor was gradually growing less, sometimes almost completely subsiding, but readily aggravated by observation. Although in good physical health a rather definite ergophobic tendency was somewhat discouraging at first.

The circumstances of the casualty, as the invalid recalled them after the lapse of nearly a year, were as follows:

It was about eight o'clock of a very dark night. He was on guard in the trenches when a shell came over and fell, as it seemed to him just below the parapet and exploded. He declared himself unable to remember anything immediately following. Although he could not state whether he was knocked unconscious, he knows that he sustained no physical injury. (As a matter of fact, patient was able to walk to the aid-post). A little later in the night he found himself in a dug-out dressing station

with an aching head and general ill feeling. The following morning he was lying in bed when the Medical Officer made rounds. He does not recall shaking or trembling up to this time. To the doctor's enquiry concerning his complaint, he replied that he was sick at the stomach and weak in the legs. The doctor asked him to get up and walk a little. He took a few steps and stretched out his right hand to grasp a post for support. Just then he noticed that his hand began to shake. This was the beginning, and from that moment the tremor has never ceased.

The patient remembers that a medical officer in England stated that the disability could be cured only by time.*

Other symptoms, such as headache, dizzy sensations, nervous irritability, hyperidrosis, emotionalism, terrorizing dreams, apprehensiveness, exaggerated startle-reflex, had largely subsided by the time the invalid reached Canada.

CASE 2.—*Functional Gait Disorder*.—Youth of sub-normal intelligence. Freight-heaver. Age 22 on enlistment in September, 1915. He saw about ten weeks' service in France (between August and November, 1916), and according to his own account was twice, more or less, buried by shell explosions and his right leg injured. He describes unconvincingly various initial subjective symptoms of loss of sensation and muscular power.

Patient's record shows numerous hospital admissions in Canada, England and France. His medical sheet contained entries for measles, gastric catarrh and jaundice, myalgia, influenza and debility.

Record in France states, "He complained so much of pains in thighs, shins, between the shoulders, that he was sent to hospital for treatment, and in spite of every measure taken during the month of November he complained more and more, and was sent to England, December 4, 1916."

He remained continuously under treatment in England until invalided to Canada, June, 1917. A medical board at Ramsgate, May 21, 1917, stated,—“Physical examination fails utterly to discover any pathological condition of the body. His mentality is lacking in the manly qualities. No stamina; nothing to work on or appeal to. He limps in a most absurd man-

ner upon his right leg and leans heavily on his cane. Is willing to take all treatments prescribed in which he does not have to exert himself, but at gymnastic exercises he 'lies down' and they can do nothing with him. He has been treated with the utmost kindness and patience but nothing has been achieved beyond thoroughly convincing everyone that he is opposing all effort to bring him to normal functional activity. The patient has stated that he will not recover until he is returned to civilian life."

Casualty form states that on November 19, 1916, invalid was missing after action, but there is no record of any casualty. On December 2, admission to field hospital is recorded with diagnosis, "debility."

This man throughout has made the impression of subjectively exaggerated or feigning symptoms. On return to Canada his sole apparent disability was loss of function of the right knee. He maintained that he had no power whatever to fix this joint in walking. In consequence, at every step the right knee would give way until it almost touched the ground, the left leg dragged forward; and upon this, with the help of his cane, he would then rise again to the erect posture. In this very spectacular fashion, as the result of long practice, the invalid could get over the ground about as rapidly as the average person.

Before accusing this man of malingering, it should be realized that he is a moron (mental age approximately 9). He went to school until he was sixteen, at which time he says he was in the fifth grade, but never learned easily. All his schooling was in New York State, where he lived until the age of sixteen. The capital of New York State he gives as "Boston." He exhibits marked defects in logic and judgment and is hardly even aware when betrayed into self-contradictions. He recounts with great readiness the numerous varied treatments which his disability has successfully withstood; declares that he is incapable of working and that a total disability pension would be the only fair adjustment of his case.

This is the type of man who should have been excluded at the beginning on the ground of mental deficiency, although there were no abnormal physical findings. Because of his mental defect and lack of an adult sense of independence and responsibility he easily yielded

* All too often one hears from patients the stereotyped expression: "The doctor at ——— said it would take months, maybe years, to cure me." And these neurotic invalids we find faithfully fulfilling the alleged medical prophecy.

to every tendency to indisposition: appears to have been an habitual sick parader; rendered no effective military service: and his presence and influence were detrimental to his comrades.

CASE 3.—*Postural Disorder*.—Enlisted September, 1915, at the age of 22. Had worked at odd jobs, his last being that of hotel call boy. Had very little schooling. There is a history of some sort of nervous attack about five years ago. Served in France from May to October, 1916, principally in the ammunition column. In September he reports a close escape, his wagon being blown to pieces by a shell, although he was uninjured. In October he was blown up, striking his right thigh in his fall; then partially buried by a second explosion. According to the patient's account, there may have been partial or transitory lapses of consciousness. Six weeks later he was convalescing in an English hospital, his disability being described as "Contusion of the right knee." The report adds that "Unfortunately in addition to his physical injury he became exceedingly nervous, and from time to time has periods of excitement and restlessness, during which he will be unable to speak for a few minutes to an hour or two." (The distressing feature of the casualty was that at the time of the explosion he was standing beside his lieutenant, who was instantly killed, his head being blown from his body and falling near).

For several weeks in November and December splints were intermittently applied. Symptoms appeared to alternate between hip and knee, one joint being free and the other maintaining a slight flexion, and vice versa. In January, 1917, the patient was walking with crutch or canes, and in March without support. There was now, however, fixed apparent shortening of the right lower extremity. In standing the heel was an inch and a half from the ground, and a boot with a double heel was supplied.

In August he reached Canada. At this time no physical disability was demonstrable. There was a sense of weakness in the right knee, which was always held in a slightly flexed position. The vicious posture habit was complicated by tilting of the pelvis, which exaggerated the apparent shortening.

CASE 4.—*Aphonia*.—Enlisted February, 1915, Age 19. Previous occupation, horse breeder. On his return to Canada after a year in France

this man presented a single disability, namely, absence of voice. He makes no other complaint except that he does not think he can do as big a day's work as before he enlisted: gets tired very easily.

Patient carries a note book in which he writes answers to questions. He states that his casualty occurred September 15, 1916. Although he could hear the shell coming, he does not recall the explosion. (The history says that he was buried by the shell explosion, was unconscious for three days and then at first unable to walk). The first thing he remembers is being on board ship going to England, reaching hospital September 18. He states that he could not walk for about two weeks and had a feeling of great weakness. The startle-reflex was conspicuous and sleep was disturbed by terrifying dreams. His chief physical suffering was from headache.

Invalid declares that from the time he regained consciousness he has never been able to speak. On arriving at the hospital he found in the ward two other men likewise affected. All three received similar treatment, chiefly electricity. One case recovered his voice during November and the other in December and both were evacuated from the hospital. Our patient's disability appears to have been more stubborn and he volunteers the information that during eight months in England all kinds of treatment were unavailingly tried, including electricity inside and outside, hypnosis, anaesthetization, lip exercises and the efforts of an elocution teacher.

There is no organic disturbance of the organs of speech. Patient makes the natural sound in coughing and is able to whistle. Coöperation is very imperfect, however. He follows any directions except such as have a direct bearing on his disability. For example, voluntary control of lip muscles is complete; but when asked to imitate lip movements in the formation of letters or words, he simply avoids making the slightest effort. He is inclined to be annoyed by tests directed toward the determination of his disability.

When left to himself the patient is in good spirits; enjoys being with others and takes a keen interest in games and other amusements. He shows no trace of worry because of his lack of voice, and admits the possibility of recovering it sometime.

CASE 5.—Another spectacular voiceless case was that of a soldier who received shell wounds of the face with injury to both ear drums and consequent deafness. For five weeks following his casualty he was voiceless as well. One day he was wheeling another wounded patient and accidentally jarred him. The man cried out with pain and our patient asked him if he had hurt him, becoming dumb again immediately. A little later he was seized with a convulsive attack, which he was told lasted three hours. On recovering consciousness he found that he could speak without difficulty.

(To be continued.)

Selected Papers.

DIAGNOSIS IN GENITO-URINARY SURGERY.*

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THE urinary system exercises two functions, the separation of the urine from the blood, and the removal of the urine from the body by the agency of the ureters, bladder, and urethra. A complete diagnosis of a disease in the urinary system would include an exact description of the causative factor; the influence of that lesion on the secretion and removal of urine; and the effects of the derangement of the urinary system on the organism as a whole. In some cases the local organic change is of paramount importance, in others the lesion, intrinsically benign, may produce widespread effects on other components of the system, and, again, abnormalities in the urinary system, may sink into relative insignificance when compared with the nervous, vascular, or metabolic phenomena of the patient. We treat patients, not pathological processes, and it is of first importance to investigate the relationship of the disease to the individual.

To determine the nature of the local cause of disease, the employment of certain technical methods is necessary. Through the cystoscope and urethroscope, the urinary tract from the vesical orifice of the ureter to the external urinary meatus can be seen. Above the ureteral orifice, by the aid of radiography, stone in the ureter and kidney can be demonstrated, and by a combination of ureteral catheterization, the

injection of opaque substances into the ureters, and X-ray examination, the capacity, outline, and course of the ureter and its pelvis can be determined photographically, and the presence of obstruction therein can be noted. By such methods the whole of the urinary tract lends itself more to a complete search for local lesions than any other system in the body. The local lesion may retard or accelerate the removal of urine from the body, and its influence can be determined by clinical and cystoscopic methods.

The relationship of the organic cause of disease to the secretion of urine is a difficult problem, as can be seen by a brief consideration of the principles involved. The modern theory of the secretion of urine is that the blood plasma is filtered through the capsules of the glomeruli of the kidney; the filtrate is simply plasma minus protein. In its passage through the tubules this fluid is altered by the absorption of certain of its constituents by the epithelium; the passage of the absorbed water and solids of the glomerular filtrate through the epithelial layer entails the expenditure of energy by the cells. "The secretion of urine thus consists of two distinct processes, differing not only in site but also in nature. The first of these, the filtration, occurs in the glomerulus, and is purely physical: the second, the reabsorption, occurs in the tubules, and depends on the vital activity of the epithelium."—Cushny.

The constitution of the urine depends ultimately on the constitution of the blood, and if the kidney is a filter it would seem practicable to determine its functional capacity with accuracy by comparing the filtrant or blood plasma with the filtrate or urine. If, for instance, the kidney filter were inefficient, the diminution of urea in the urine would imply an increase of urea in the blood, provided that the supply of that substance to the blood were constant. In other words, if a co-efficient expressing the normal relation of the urea in the plasma to the urea in the urine could be proved reliable, the renal function could be accurately tested. Such a co-efficient was introduced by Ambard, but it is subject to criticism on the following points:—The amount of urea in the urine varies within wide limits under normal conditions, though it is fairly constant in a twenty-four hours' specimen. The amount in the blood probably shows a similar variation, and in order to establish a relationship between the urea

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in the blood and that in the urine it would be necessary to withdraw samples of blood at frequent intervals during twenty-four hours, and take the average percentage of urea. Such a method is impracticable. Moreover, when the kidney is not functioning normally urea is often retained in the tissue fluids apart from the blood, and there are no data from which the proportion of this tissue retention can be measured.

Methods of estimating renal function which depend on the relation between the same substances in the blood and in the urine are not of practical utility at present. The determination of the freezing-point by cryoscopy is an accurate method in skilled hands of taking the specific gravity of urine, but the density of the urine does not indicate the functional capacity of the kidney. This does not mean that determination of specific gravity is unnecessary.

The question may be summarized thus:—Analysis of the urine is important, as it gives us valuable information regarding the possibility of renal disorder, but it cannot give us a true picture of renal function. When, however, the amount of urea excreted in twenty-four hours is markedly diminished, it can be assumed that there is retention in the body if the patient is ingesting the normal amount of nitrogenous food. By the estimation of the amount of urea and chlorides, and by taking the specific gravity, a suggestion of the efficiency of the kidney can be obtained, but it must not be concluded that if normal results are obtained the kidneys are normal. Normal urine does not imply normal kidneys. This can be demonstrated by the introduction of foreign substances which are excreted in the urine, and which are easily distinguishable from the ordinary constituents. Of these substances I have more experience with indigo-carmin, but I consider phenolsulphonaphthalein a better indicator of renal disturbance chiefly because it lends itself to greater accuracy in technique. The method is applied thus: a catheter is passed and the bladder emptied; the catheter leads to a flask containing some caustic soda solution; 1 c.c. of a solution of the drug is injected intramuscularly. Inside five minutes its appearance in the urine is indicated by a definite pink colouration. The urine is collected for two hours, rendered strongly alkaline, and compared with a stan-

dard solution of the drug. 40-60 per cent. of the dye is eliminated in the first hour, and 20-25 per cent. in the second hour in normal individuals. Delay in appearance, diminution in output, and prolonged excretion indicate renal insufficiency, and these signs may be found when the urine is normal. It is significant that a low excretion of phthalein is usually found when retention of urea in the blood can be deduced by clinical and demonstrated by laboratory methods.

Phenolsulphonaphthalein is assuming a place of first importance in the diagnosis of renal conditions. All these tests show what the kidneys *are* doing, not what they *can* do. There is no test by which the reserve capacity of the kidneys can be determined accurately. When, however, these methods indicate derangement it may be assumed that the resistance of the kidneys to physiological, pathological, or therapeutic strains will be diminished. The influence of urinary derangement on the body in general can be determined by clinical methods, and it must be remembered that dropsy and ascites, on the one hand, and convulsions and coma on the other, are signs of advanced involvement. More stress should be laid on headache and high blood-pressure.

With this as introduction, I proceed to some illustrations of the general theme, taking first of all obstruction at the neck of the bladder. The commonest cause of obstruction at this site is an alteration of the normal relationship of the prostate gland of the neck of the bladder and to the proximal portion of the urethra.

A ball-valve deformity is occasionally seen, due to enlargement upwards of, or the development of an adenoma in, the middle lobe of the prostate, and in one of my specimens an enlargement of the subcervical glands of Albaran produced a lesion closely simulating pure enlargement of the middle lobe. Though enlargement of the middle lobe of the prostate undoubtedly takes place without the rest of the gland becoming affected, and undoubtedly causes obstruction, it is much more common to find it in association with enlargement of the lateral lobes, with or without continuity of adenomatous tissue. In sections taken through the enlarged prostate and its environs in the dead subject the outstanding features are the limitation of the deformity to the supra-montane portion of the urethra and the constant

non-involvement of the posterior lobe, *i.e.*, that portion of the prostate which lies behind the common ejaculatory ducts. There would have been fewer misconceptions about "general" hypertrophy of the prostate and "total" enucleation if anatomical and pathological studies of the diseased gland *in situ* had been undertaken. We owe much to Lowsley for his careful embryological and anatomical investigations on this subject.

I have had only one case in which hypertrophy of the internal sphincter muscle was the obstructing agent. The mass of hypertrophied muscle markedly accentuated the angle between the floor of the bladder and the proximal portion of the urethra; the appearance of the latter was similar to that seen in cases in which a median bar was proved to exist; microscopic examination demonstrated the muscular origin of the obstruction.

The fibrous median bar at the internal urinary meatus is seen with relative frequency. The small fibrous prostate is a well-known clinical and pathological entity.

The prostatic conditions which in my experience have produced obstruction to the outflow of urine may be enumerated thus: 1. Enlargement of the lateral lobes, frequently accompanied by involvement of the middle lobe. 2. Isolated enlargement of the middle lobe. 3. Enlargement of the sub-cervical glands of Albarran. 4. Fibrous median bar. 5. Small fibrous prostate. 6: Muscular hypertrophy behind the internal urinary meatus.

In one case of mine the symptoms produced by a papilloma at the neck of the bladder were identical with those of enlargement of the prostate. Calculus occasionally gives rise to a similar symptomatology. The symptoms of these various manifestations of prostatic disease are alike, incomplete retention being the most prominent; palpation per rectum indicates only gross changes in the prostate; the differential diagnosis can be made only by instrumental methods. The value of the routine use of Buerger's or McCarthy's cystourethroscope in these cases cannot be over-estimated. These instruments put the surgeon in a position to know exactly what type of obstruction he is dealing with, and enable him to plan his therapeutic measures accordingly. In cancer of the prostate cystoscopic examination occupies a subsidiary place to rectal examination.

for the outstanding physical sign is the induration beginning in the posterior lobe and gradually extending upwards between the seminal vesicles. Young has emphasized the importance of this sign, and has pointed out that such induration can be discovered readily by palpating the prostate per rectum, after the introduction of a cystoscope into the bladder.

There are cases in which it is not easy to state definitely that there is obstruction, and in such a careful examination of the nervous system must be made. For the symptoms of obstruction at the neck of the bladder, without any organic cause being perceptible, point strongly to a nervous lesion which is not always tabetic. In fact, in no doubtful case should such an examination, combined with a Wassermann test, be neglected. It may be argued that if a patient presents himself with obstruction at this site, the exact type is a matter of little importance, for he must undergo an operation for its removal. Exact diagnosis has a bearing on treatment and on prognosis. The fibrous bar and the hypertrophied muscle can be treated through the urethra without a general anaesthetic and without loss of blood. Prognosis is closely allied to diagnosis and the prognosis in cases of the small fibrous prostate is not good either with regard to the immediate success of the operation or to its ultimate result. Moreover, if anticipation of possibilities be desirable, how much more so is knowledge of the facts.

The exact nature of the local lesion is of small importance compared with the effects produced on the kidney. Obstruction at the neck of the bladder causes retention of urine, the muscular coat of the bladder becomes hypertrophied in the effort to overcome resistance, but in spite of the excessive muscular exertion some urine remains constantly in the viscus. The presence of the residual urine and the excessive development of the vesical muscle round the ureteral orifices cause a certain amount of back pressure along the ureters, which become dilated, and a condition of hydronephrosis results. The fluid retained in the pelvis of the ureter exerts pressure on the kidney itself, and, if of long standing, interferes with the secretion of the urine. Evidence of this interference may be afforded by the passage of an increased amount of urine of very low density and containing a trace of albumin.

As a rule, however, the urine is normal. It is the reserve capacity of the kidney that is diminished, as can be seen by interfering with the conditions under which it is working. The organ is secreting against pressure, and the relief of pressure produced by keeping the bladder empty produces swelling and congestion, the pathological condition found being one of acute nephritis superimposed on a chronic process.

Pileher and other observers have demonstrated three phases, the first before relief of obstruction, a relatively normal condition, the second after relief, distinguished by diminished amount of urine, 15-20 oz. a day, low specific gravity, 1002-6, albumin appearing or increasing in amount, low output of phthalein. The third phase shows the recovery from this reaction. These changes in the urinary system are reflected in the general condition of the patient. After drainage of the bladder has been established he often suffers from general depression, loss of appetite, restlessness, nervousness, sometimes vomiting, and uraemia. The blood pressure, which before was high, 200 m.m. Hg., falls, and does not recover for some days. The high antecedent B.P. probably indicates an attempt to keep up the secretion through a damaged kidney. Our fathers realized the danger of withdrawing all the urine at once in cases of acute retention. Modern workers realize the danger in chronic retention, and therefore practise systematic preoperative drainage, either by catheterization or cystostomy, so that the kidneys and patient may recover from the reaction before the stress of operation is added. The fear of uraemia has been present in the minds of all surgeons after prostatectomy. Whether the general condition of the patient justifies an operation or not, it is no contra-indication to preliminary drainage by regular aseptic catheterization. When a general anaesthetic is contra-indicated I would advise the use of spinal anaesthesia.

TUBERCULOSIS OF THE URINARY TRACT.

Lesions of the prostate and the neck of the bladder are elements of an essentially mechanical process, namely, obstruction to the outflow of urine and its sequelae. We now pass on to infections of the urinary tract with tubercle bacilli, and at the outset it is advisable to enumerate the principles on which depend both

diagnosis and treatment. The first part of the urinary tract to be involved in tuberculous disease is the kidney, and the bladder is the indicator thereof. Vesical symptoms have a renal cause, when tubercle bacilli are present in the urine. There are, of course, exceptions to this generalization, but the efforts to prove the generalization will indicate the exceptions. We cannot give an accurate description of the causative lesion in renal tuberculosis in a clinical case; all we can determine is the presence in the kidney of a tuberculous focus; if the symptoms have developed very recently we might venture on the diagnosis of a focus of tuberculous granulation tissue near the apex of a pyramid involving the corresponding calyx. The diagnosis of such a focus can be definitely determined only by the collection of urine from that kidney and the demonstration in it of the bacilli. From the kidney the infection spreads to the bladder along the lumen of the ureter. The orifice of the ureter becomes oedematous, small tubercles form round it, and ulceration follows. The appearance of these signs at the ureteral opening is of the utmost diagnostic importance in an early case, for it signifies the presence of disease in the corresponding kidney. On the other hand, the disease may have totally destroyed the kidney on one side, the bladder, and *both* ureteral orifices may be involved, and the kidney on the other side may be sound. Too much significance cannot therefore be attached to the appearance of the ureteral orifices in an advanced case. *Both* ureters must be catheterized; if the urine from one is normal it is safe to diagnose an extensive tuberculous process in the kidney of the other side.

The amount of disturbance in renal function is sometimes out of all proportion to the extent of disease, as can be seen by comparing the urine from each kidney. The same general method of diagnosis is applicable to all renal cases. When excessive mobility of the kidney is the cause of symptoms, the effect of that mobility on the removal of urine can be estimated by pyelography, and on its secretion by phthalein.

TUMOURS OF THE BLADDER.

I want briefly to touch on another subject in which the local lesion is of outstanding importance. I refer to vesical tumours. It is com-

monly held that any tumour in the bladder may be malignant, and that an accurate diagnosis can be made only by examining the base of such a growth. When our best means of treating all vesical growths was by suprapubic cystotomy, it did not matter much whether we made our diagnosis before or after removal, as we always took away the base of the tumor, and that part of the vesical wall to which it was attached. With the advent of the high frequency current as an endovesical method of treatment, it is essential that we should exclude malignant disease before high frequency cauterization is employed.

Buerger in 1915 gave in detail the results of pathological examination of 113 cases of bladder tumours, and pointed out that it was possible in 112 to make an accurate pathological diagnosis from pieces removed from the *surface* of the growth. He based his diagnosis of malignant change on certain peculiar abnormalities in the conformation of the cells. These are: Cells manifesting irregularities in size and shape; nuclei rich in chromatin, deeply staining and of bizarre shape; cells with atypical mitoses; giant cells and multi-nucleated cells. All these, when occurring in papillomata, indicate the presence or beginning of carcinomatous change.

Further evidences are afforded by an unusual relationship of the cells to each other, in a loss of the typical palisade arrangement of the cells, in the presence of a long fusiform or compressed type of cell, in the existence of evidences of infiltration of the stroma and penetration of the basement membrane, in the presence of cells in the capillaries, and finally in the occurrence of epithelial cells in the submucosa or muscular coats of the vesical wall. When these latter changes are present the surface cells show the changes outlined above.

Any papilloma may appear benign and be malignant, while the reverse is sometimes true, and different portions of the same growth may show different pathological processes. It is, therefore, of great importance to remove as large a piece as possible—which is most easily done with a snare, or to remove several fragments with the punch forceps from different portions of the growth. In order to avoid the risk of disseminating the disease by opening up tissue planes in the growth, the tumor is im-

mediately cauterized by the high-frequency current. With these precautions valuable data for diagnosis and essential indications for treatment can be obtained. If the growth is a benign papilloma the high-frequency current is the method of election for treatment, if it be a malignant papilloma, *i.e.*, one which shows some of the surface changes indicated above the high-frequency current is often effective, but should not be persisted in if four or five treatments bring about no marked improvement. In other types of malignant growth radical operation is urgently called for.

LESIONS OF THE POSTERIOR URETHRA.

Lesions of the posterior urethra, though sometimes intrinsically insignificant, frequently affect deleteriously the urinary, sexual, or mental balance of the patient. This region has been somewhat neglected by the genito-urinary surgeon and ignored by the practitioner, probably because of the difficulties met with in obtaining a clear view through open air urethroscopes. A most important advance in diagnosis followed the introduction of the lens type of water dilating urethroscope, through which the posterior urethra can be inspected as easily as the bladder through the cystoscope, and more easily than the anterior urethra through the aero-urethroscope. There is now no reason why this portion of the urethra should not be included in any routine examination of the bladder. It must be remembered, however, that as vesical lesions often indicate a pathological renal condition, so many lesions in the prostatic urethra point to a primary focus of infection in the prostate or seminal vesicles.

Many of the pathological conditions found are either concomitants or results of gonorrhoeal infection, producing a common appearance of the verumontanum which may persist long after the discharge has ceased, and may be the cause of irritability, either urinary or sexual. Small cysts in the roof of this portion of the urethra, or scattered in the region of the verumontanum may keep up a slight discharge, often free from micro-organisms, for many months. Inflammation round, and the issue of pus from, the orifices of the ejaculatory ducts direct treatment to the seminal vesicles. Small ulcers and granulations furnish indications for local applications. I have had two cases of polypus of this part of the urethra during the

last year, in both of which frequent emissions, sexual irritability, and neurasthenia were prominent symptoms.

Since this paper was read I have encountered a case of double pyelitis with intense vesical tenesmus, which showed a greatly swollen and ulcerated verumontanum; treatment directed to this region temporarily allayed the vesical irritability. Similar symptoms do not always indicate similar pathological processes, so complete and exhaustive examination is never waste of time.

Diagnosis should be detailed, yet wide in its application; it should not be hampered by experience, nor should tradition bind it. It should, as far as possible, be based on direct observation, for the classical dictum that mistakes are made more through want of observation than lack of knowledge still holds good.

Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

(Continued from page 567)

THREE UNUSUAL NASAL (SPHENOPALATINE) GANGLION CASES.

GREENFIELD SLUDER, M.D., ST. LOUIS.

The usual neuralgic picture is pain in and about the eyes and the upper jaw, the teeth, extending backward about the temple under the zygoma into the ear, making earache; and then backward into the mastoid; and severest usually at a point two inches back of the mastoid, to extend into the occiput, the neck, the shoulder; into the shoulder blade, and sometimes the axilla and breast, and frequently down into the arm, forearm, hand and even to the finger tips.

Added to this symptom complex, frequently is found a sneezing and watery secretion, more marked probably in the morning, frequently extending through the day; a red external nose, with tearing eyes, photophobia, and a sense of discomfort in the eyes difficult for the patient to describe.

Occasionally, however, are added unusual fea-

tures to this clinical complex. These cases record phenomena that at present are unique and cannot be explained. They may be recorded as facts.

The first case was relieved of the dizziness and the headache after cocainization of the ganglion, the headaches returning in six hours. The patient passed from further observation.

In the second case headache ceased, but as an effect of cocainization the right eyelid drooped very perceptibly to obscure probably half of the blepharospasm, and the pupil contracted to one-half of its fellow of the opposite side.

The third case was one of a right-sided blepharospasm of great severity, and was a post-ethmoid sphenoid suppuration with polyps on the right side.

Cocainization of the right nasal ganglion relieved the blepharospasm for a period of three hours and injection of the same ganglion was followed by relief of the spasm for three to six hours.

Operating on the ethmoids and sphenoids did not relieve the spasm.

The left side was then operated upon without relieving the spasm, although the right eyelid opened after injection of the left ganglion.

DISCUSSION.

DR. EMIL MAYER, New York City: We are much indebted to Dr. Sluder for calling attention to these nasal ganglion cases and what may be done for them. I recall the case of a young woman whom I had successfully treated for dysmenorrhea by intranasal treatment. She came to me later, suffering with headache, and I cocainized the nasal ganglion on the side that she had her headache. An hour afterward she telephoned to say that her headache had completely ceased. She was so rejoiced that she felt that she must let me know at once how much better she was. She remained well for some months and then had a recurrence. She came again and had an application made to the ganglion on that side, and it has remained well ever since. Though I cannot explain why we can get such wonderful results in dysmenorrhea cases by a treatment which must perforce be called empiric, some of us may at some time be able to understand and explain it. The word "empiricism" must apply in this instance, as in the other instance of Dr. Coffin's, where we are unable to give a true scientific reason for the things that we do. The result is

there, and the patient is happy, and that is all that can be said.

DR. HENRY L. SWAIN, New Haven: I have tried to cocainize the ganglion neuralgie cases, and I want to confirm the speaker in what he has observed on the question of dizziness, which I have been unable to explain any more than he has. One of the cases that I cocainized for headache also suffered from vertigo, and it was relieved entirely during the period of her cessation from pain, which was only two or three weeks. I made another application of adrenalin and cocain in combination, and she was relieved for so long that she did not think it necessary to have any further treatment of that kind. That was a year ago. I have not seen her since, and do not know whether she is still well or not.

The question of why we have pain in these sinus cases is most interesting. I have had a number of cases of severe pain with disease which I thought was well and have had an x-ray picture taken to learn the exact state of things. The neuralgia has ceased in five instances immediately after taking the picture, so there must have been something in the exposure to the x-ray that broke up the nerve complex in some way and caused the pain to stop on the spot. Previously I had been treating the case without seeing relief. Immediately after taking the picture the pain stopped. This occurred in several instances in persons that I saw every day, the pain ceasing thereafter entirely. The question arises, Could this fact be put to some therapeutic use, and be of some therapeutic value? Shall we expose patients with this type of neuralgia to the x-ray to cure them? That question I leave to you to answer, but I do not think that this occurrence was accidental in all five cases in which there was no sinus disease but neuralgia, and in which following the x-ray exposure the pain disappeared entirely.

DR. GREENFIELD SLUDER, St. Louis, closing: The case that Dr. Mayer has described was, I fancy, one of those in which the ganglion lies particularly close to the surface. That sometimes happens, and such a case may be exploded into the most violent lower-half headache by an ordinary coryza. Cocainization, in that case, is curative, not palliative merely.

Dr. Swain's observation that an x-ray relieved headache is exceedingly interesting.

REPORT OF SYPHILITIC NECROSIS OF THE INTER-MAXILLARY PORTION OF THE SUPERIOR MAXILLA.

LIEUT.-COL. CHARLES W. RICHARDSON, M.C., N.A., WASHINGTON.

The history of a young man, twenty-six years of age, married, stock broker's clerk, is presented. First seen on April 16, 1917, on account of intense pain in the floor and lateral wall of the left nasal chamber. There was no swelling or inflammation, and no interference with the function of the left nasal chamber.

The patient had shortly before been operated on, or stated that he had been operated on for a mild affection of the septum, although there was no evidence of such operation having been done. The patient's condition was attended by great suffering.

After a few days, during which transillumination and x-ray examinations were made of the incisors and lateral incisors, as well as of the left antrum, all of which were negative, a Wassermann was made which resulted in a double positive.

As there was great tenderness over the upper incisors, patient had four of these removed. Salvarsan was given. In spite of this the intermaxillary bone separated by rapid necrosis in one mass.

The important and salient features of this case are:

1. Severe and continuous pain without any objective signs.
2. The severe necrosis without any inflammatory swelling.
3. The complete limitation of the necrosis within distinct anatomic borders.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven: In a similar case to Dr. Richardson's, where the patient had most severe pain, after proper internal and local treatment, I removed a sequestrum fully as large as that which he has shown us. A fistulous tract led through to the floor of the nose. The entire premaxillary bone came away, but complete healing resulted.

CYST OF THE THYROGLOSSAL DUCT—A REPORT OF TWO CASES.

OTTO T. FREER, M.D., CHICAGO.

The anatomic origin of these cysts is described by the author. Two cases are reported.

CASE 1. Male, began to have difficulty in swallowing, and at the same time noticed a swelling in the region of the thyrohyoid space. When first seen, on April 19, 1915, the swelling had increased and there was an increase in the difficulty in swallowing, so that to make solid food go down he had to try twice and help with a mouthful of water.

Examination showed a normal nose, pharynx, larynx and esophagus. In the thyrohyoid space a cyst was felt, seemingly lying underneath the sternohyoid muscles. It was of walnut size and could be felt to interfere with the ascent of the thyroid cartilage to the hyoid bone when the patient swallowed—that is, the cyst became pinched between the two structures.

Operation on June 17, 1915. After dissecting off the superficial fascia and platysma muscle from a vertical median incision, a strong, tendinous layer of fascia was exposed that was attached to the lower border of the hyoid bone above and to the border of the thyroid notch below, so firmly binding down the cyst between itself in front, the median thyrohyoid ligament behind and the thyrohyoid membrane laterally, the cyst being unable to escape from the compartment in which it was confined when pinched during swallowing. When exposed by removing the fascia described, the wall of the semi-transparent cyst was found to be so frail that it could not be seized lest it tear. This made the dissection tedious, as only the tissue surrounding the cyst could be held with tissue forceps, the cyst being held aside with dull retractors. The cyst was removed unhurt from its bed and was found to end above in a fibrous pedicle that lay against the posterior surface of the body of the hyoid bone and could be followed as high up as its superior border at the level of the hyoepiglottic ligament. Removal of the cyst exposed the median thyrohyoid ligament to view, this ligament forming the posterior wall of the compartment in which the cyst had been confined.

Microscopic section of a part of the cyst wall showed it to be composed of fibrous tissue lined with a layer of leucocytes intermingled with numerous, evenly distributed giant cells. There was no epithelium. The cyst contained a clear fluid. The removal of the cyst enabled the patient to swallow normally.

CASE 2. The second patient was a woman of thirty-two years, first seen on November 8,

1916. She had a swelling over the larynx since her tenth year. Iodin was injected into this swelling during the summer, and since this was done the swelling had gradually increased in size.

Examination showed a spindle-shaped cystic tumor of the size of a walnut in the prelaryngeal region. The upper pole of the cyst could be felt to dive under the center of the body of the hyoid bone; its lower pole dwindled to a cord that could be felt to reach the region of the thyroid isthmus.

Operation under cocaine on November 17, 1916. It took two hours to dissect out the cyst, as only the most delicate handling could prevent its rupture, and inflammatory changes caused by the iodine injection had made the cyst wall grow to its surroundings, so that the thyrohyoid and sternohyoid muscles were firmly joined to it in front. The upper end of the cyst ended in a cord that extended upward under the body of the hyoid bone to its upper border, where it was lost in the hyoepiglottic ligament. Below, the cyst ended in a similar cord that joined the isthmus of the thyroid gland. When freed from its bed, just before removal, the cyst ruptured, thick pus escaping, a cold abscess probably caused by the iodine injection.

After the cyst was taken away, the thyroid and cricoid cartilages, upon which it had lain, were bared to view.

In the first case the possibility of the cyst being one derived from a subhyoid bursa might come into question. However, the pedicle which formed a cord passing up under the body of the hyoid bone in the location of the thyroglossal duct, showed the thyroid origin of the cyst.

In the second case the entire thyroglossal duct, expanded to a cyst in its middle, was present to prove the correctness of the diagnosis.

REPORT OF A CASE OF LARGE OSTEOMA INVOLVING THE RIGHT FRONTAL SINUS AND UNCOVERING THE ADJACENT BRAIN.

JOHN F. BARNHILL, M.D., INDIANAPOLIS.

This occurred in a girl of sixteen years who first noticed a swelling on her forehead a year previously, which caused no symptoms, but was increasing slowly in size. The speaker was consulted because of deformity.

X-ray plates showed an oval tumor involving the right frontal sinus, with absorption of the external and internal plates of the sinus walls.

Operation August 21, 1917. An area of half an inch in circumference was wanting in the frontal wall of the sinus, and through this the hard glistening tumor presented.

The remaining portion of the frontal wall was removed by rongeur and the tumor forcibly pried out by stout bone rasps. It was attached to and extended into the infundibulum. The dura was exposed and absorbed over a large area. Some softened bone about the margin of the dehiscence was rongeured away, a light sprinkle of iodoform powder applied to the exposed dura and brain. The infundibulum was enlarged by means of a bone rasp, a drain tube inserted, the cavity was lightly packed with sterile gauze and the external wound completely closed.

Recovery with but slight scar was entirely uneventful.

The tumor was an osteoma, weight a little more than six hundred grains, with great density.

DISCUSSION.

DR. JOHN M. INGERSOLL, Cleveland: At the meeting last year I showed some radiographs of an osteoma of the frontal sinus in a boy fourteen years old, following a blow from a baseball. He has been under observation for three years. During the first year after the operation I was very hopeful, but the radiographs that I exhibited last year showed a recurrence and that the osteoma had grown back into the brain cavity so far that it was inoperable. The tumor grew originally from the infundibulum into the frontal sinus, just as it did in Dr. Barnhill's case. The general opinion is that the tendency of these growths to recur is very marked.

We have now under observation, at Lakeside Hospital, a man who has an exophthalmos, one eye being pushed downward and forward by an osteoma growing from the external part of the orbit. The x-ray taken two months ago, compared with one taken recently, shows that the osteoma is slowly increasing, but with the known tendency of these growths to recur rapidly, we have hesitated to operate.

DR. JOHN E. MACKENTY, New York City: In the service at the Manhattan Hospital, in another department, I was interested in an os-

teoma of the frontal bone. It involved the frontal sinus and extended back along the base of the brain, going through to the dura. The condition is pretty well recognized under the name of ivory osteoma of the frontal bone, and it is rather serious to operate on it. This man's was due to syphilis. He had evidence of syphilis at the time. I should like to ask Dr. Barnhill whether this girl's blood was examined for syphilis. The man subsequently died of meningitis. His tumor was not operable. The consensus of opinion is that when these tumors are very large, they are inoperable because the difficulty of getting them out entirely is so great.

DR. JOHN F. BARNHILL, closing: She was an only child. There was no evidence of hereditary syphilis, and I looked on her as a perfectly well girl except for this ivory-hard tumor. I should be greatly amazed if this should turn out to be a sarcoma. I am well aware that sarcoma is more common in this region than anything like one. I should be greatly astonished if it returned. When I pried it off, it snapped from the infundibular attachments with a crack such as would a piece of marble, and in sawing through it was so ivory like that it could be compared to a billiard ball. There was no suspicion on the part of anyone that it could be sarcoma, but I know the tricks of sarcoma so well that I would not say that it is impossible for it to have been one.

(To be continued.)

American Medical Biographies.

JANEWAY, THEODORE CALDWELL
(1872-1917).*

THEODORE CALDWELL JANEWAY was born in New York City, November 2, 1872, son of Professor Edward G. Janeway, America's leading clinician, consultant and teacher, and Frances Strong Rogers. Developing in such a highly charged medical atmosphere, Theodore Janeway also became eminent as a physician, a leader in scientific work, and a teacher.

Beginning at the Cutler School, he graduated from the Sheffield Scientific School, Yale (1892). He graduated in medicine at the College of Physicians and Surgeons (1895); practised with his father and was instructor in bac-

*From the forthcoming "American Medical Biography," by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important addition or correction will be welcomed by the authors.

teriology in Columbia (1895-1896); interne in St. Luke's Hospital (1897); instructor and lecturer in the University and Bellevue Hospital Medical College (1898-1906); associate in clinical medicine in the College of Physicians and Surgeons, Columbia (1907-1909); and upon the retirement of Dr. Walter Belknap James (1909) he became professor of medicine, until his resignation in 1914 to go to the Johns Hopkins University and hospital.

"Janeway as a young man was conscientious, serious, persevering, and matured early. . . always studious and a hard worker, but light-hearted and keen among his fellows, and cheerful and well-liked" (Howland).

In his medical training under the constant supervision and guidance of his father, he received a continuous intensive training, absorbing medicine at every pore, and as far as it is ever possible for one man to transfer his abilities, the extraordinary skill of the elder Janeway was engrafted into the heart and mind of the son.

Theodore Janeway was the first in New York City to teach medicine from the standpoint of disease as a departure from the normal physiological basis, and with Oertel he introduced at the City Hospital the clinical pathological conference.

The clinical study of blood pressure in this country began with him, and he devised the first instrument readily available at the bedside.

When he went to the City Hospital on Blackwell's Island, the service was wretched, but in a short time he reorganized it with an active efficient staff and with men competing for the positions on his service.

While in New York he advised and assisted the charitable organizations caring for those incapacitated for work by accident or disease; he was also closely identified with the Charity Organization Society and organized the bureau for the handicapped, a work which he considered his most original contribution. He informed the writer personally that it was a matter of serious regret that the pressing duties at the Hopkins Medical School prevented his active coöperation in this work in Baltimore.

While in New York he was visiting physician to St. Luke's, the City, and the Presbyterian Hospitals; he was active in the Association of American Physicians, and in other medical societies; at the time of his death he was

on the governing board of the Rockefeller Institute of Medical Research.

In 1914, under the grant from the Rockefeller Foundation the Johns Hopkins University adopted a whole-time basis for three chairs in the medical school, and Janeway was called as the first whole-time professor of medicine under the William Welch Endowment. His predecessors in the medical school were Sir William Osler and Lewellys F. Barker.

This decision to place these chairs on a full-time basis was a "new departure in medical education in the English-speaking world."

Janeway took part in establishing the Post-graduate School for the Study of Tuberculosis at Saranac Lake, in memory of Edward Trudeau; and for three years he was president of the Laennec Society, organized by Sir William Osler at the Johns Hopkins Hospital, for the study of tuberculosis.

A member of the Army Medical Corps, he was called into active service in April, 1917, intending to go to France with the Johns Hopkins University Unit in June, 1917, but was persuaded that his best service could be rendered in this country. He entered the service as a member of the United States Reserve Officers' Corps, safeguarding the health of the soldiers, a work temporarily interrupting his teaching activities.

As an organizer and as a clinician Janeway excelled, and was the leader of "a younger group of physiological clinicians who have been quietly but surely upbuilding and transforming American medicine" (Osler). He stood with the new school of clinicians in wedding pathology as closely as possible with clinical medicine.

Janeway's "Clinical Study of Blood Pressure" was published in 1904, and admirably illustrated the application of physiological methods to bedside problems" (Osler).

He was an editor and contributor to the *Archives of Internal Medicine*.

An elaborate work on diseases of the heart and blood vessels was nearly completed at his death; it was to have been published early in 1918, but military duties interfered.

As a public speaker, he began slowly and with hesitation, but soon warmed up and presented his subject in a clear, logical, convincing way; he became eloquent as he caught the sympathy of his audience, developing a high degree of oratory by simple force of earnestness and

moral conviction. He won friends in his personal relations by an unusual charm of manner.

His geniality and sympathetic traits of mind are seen at the best in the brief "Introductory Survey of French Medical Science" ("Science and Learning in France," 1917).

In appearance, Janeway was of slight, well-knit and alert figure, with quick yet graceful movements. With a mobile expression, his face would light and his eyes sparkle with animation as he talked. His whole appearance, to the stoop of his shoulders, indicated the scholar combined with the man of wide public interests.

In 1898 Dr. Janeway married Eleanor C. Alderson of Overbrook, Pa., who, with three daughters and two sons, and his mother, survived him.

After less than a week's illness of pneumonia, he died at his home in Baltimore, December 27, 1917.

REFERENCE.

Lancet, 1918, exciv, 80.
Johns Hopkins Hosp. Bull., Balt., 1918, xxix, 142-148, Post.

HOWARD A. KELLY, M.D.

Book Reviews.

The Internal Secretions. By E. GLEY, M.D.
New York: Paul B. Hoeber. 1917.

and

Organs of Internal Secretion. By IVO GEIKIE COBB, M.D., M.R.C.S. New York: William Wood and Company. 1917.

These two books are valuable contributions to the study of the internal secretions; they present the subject from the physiological, the pathological and the therapeutic standpoints, and indicate both the objections to the use of organic extracts and the benefits which may be derived from it.

The first volume, "The Internal Secretions," deals primarily with the physiology of the internal secretions and their application to pathology. A historical review of the subject is presented: the precursors and founders of the doctrine, the present conception of internal secretion, and the part contributed by pathology, are mentioned. The conditions are described which are essential to internal secretion—the histological, chemical and physiological considerations. The author discusses the practice of administering organic extracts, and gives in detail the objections to it. The book deals, also, with the following topics: the principal distinctive characteristics of the products of internal secretion, nutritive and morphogenetic substances, the hormones and parahormones, the endocrine pro-

ducts, the classification of the internal secretory glands and their products, and the function of the internal secretory glands.

The second book, "Organs of Internal Secretion," presents the salient facts in the study of the endocrine glands, their diseases and their therapeutic application. The author emphasizes the importance of the smaller signs and symptoms which show minor disturbances of the glands. There are two causes which may be responsible for the disorganization of the endocrine system—intestinal toxemia and mental causes. The conditions are mentioned which disturb the normal ratio between the various hormones; and the pathology and treatment of the organs of internal secretion, the use of organic extracts and the place of hormone therapy in medicine are discussed. Dr. Cobb believes that while there are objections to the use of organic extracts in medicine, organo-therapy opens a field which in the future may be of considerable value in ameliorating the conditions of patients suffering from diseases hitherto intractable.

Handbook of Anatomy. By JAMES K. YOUNG, M.D., F.A.C.S. Philadelphia: F. A. Davis Co. 1917. Fifth edition.

This "Handbook of Anatomy" furnishes a concise and complete synopsis of human anatomy. The chief improvements in this edition are the clear illustrations, many of which are colored, and the use of the Basle nomenclature. This is, perhaps, the only anatomical work of its size which fully includes the newer terminology. The book outlines osteology, articulations and ligaments, the muscular system, the heart and vascular system, the alimentary, vocal and respiratory, and the genito-urinary apparatus, the nervous system, the organs of the special senses, and surgical and dental anatomy.

Botanic Drugs. By THOMAS S. BLAIR, M.D. Cincinnati: The Therapeutic Digest Publishing Company. 1917.

"Botanic Drugs" is a book of timely interest inasmuch as war conditions have made necessary a more careful study of the production of our own indigenous botanic drugs and a development of our crude chemical resources. This book presents a record of data concerning such botanic drugs as seem most valuable for medicinal purposes. A brief review of the history of botanic medication and a list of the most widely recognized botanic drugs are given. Many pharmaceutical considerations are described, among which are: the crude drug, tinctures and extracts, and proximate principles. Some of the problems are stated which pharmacology has already solved, particularly the development of methods of drug standardization. The main part of this book is devoted to an alphabetical list of botanic remedies, their therapeutic values, and systems of dosage.

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ALCOHOL IN INFLUENZA.

UNDER date of October 1, 1918, the following letter, signed and countersigned by the President and Secretary of the Boston Liquor Dealers' Association, was sent out to the physicians of Boston:

If there are any of your patients in such financial circumstances that they are unable to purchase whiskey or other alcoholic stimulants for medicinal purposes to combat the influenza and you feel that such a prescription is necessary to their recovery, our Association will gladly supply whatever you need, without cost, while the epidemic continues.

Please phone or write to me at the above address and I will see that the prescriptions are delivered promptly.

This letter is sent after a talk with Dr. Woodward, who suggested that any offer of this action should be made direct rather than through the Health Commissioner's Office.

This letter has been construed by some as an effort on the part of the Association to use the Health Department of Boston in the exploitation of alcoholic stimulants "to combat the influenza." Others read into the letter a willing-

ness and desire on the part of the Health Commissioner to exploit the use of alcoholic liquors for this purpose. In order that all circumstances of the case may be known and presented to the medical profession, it seems desirable to publish certain correspondence, relative to the matter, which has been placed in our hands.

The first document, dated October 13, 1918, is a letter from the Health Commissioner to the President of the Boston Liquor Dealers' Association.

Exception has been taken to the letter that you sent to the physicians of this city, under date of October 1, 1918, offering to supply their patients, through them, with such whiskey and other alcoholic stimulants for medicinal purposes to combat the influenza as the physicians might deem necessary, and as the patients might find difficulty in purchasing because of their straightened financial circumstances. The particular part of the letter to which exception has been taken is the last paragraph, as follows:

"This letter is sent after a talk with Dr. Woodward, who suggested that any offer of this action should be made direct rather than through the Health Commissioner's Office."

I told you further, as you doubtless recall, that I, as Health Commissioner, could not presume to advise the physicians of Boston as to whether they should or should not use alcoholic stimulants for the treatment of influenza, but that each physician must determine in each case that came under his care whether he would or would not use alcohol, etc. I told you further that the Health Department had no persons under its care who were being treated for influenza. These circumstances, I explained, rendered it impossible for the Health Department to make use of any whiskey or other alcoholic stimulant for the treatment of any person suffering from influenza.

You thereupon inquired as to how you could get into touch with physicians who were treating patients suffering from influenza, and I told you that it seemed to me that the only way in which you could do so was by presenting the matter to them directly, yourself.

The foregoing statement embodies all of the material facts of the case. In view of the criticism that your letter has evoked, I am sending a copy of this letter to the BOSTON MEDICAL AND SURGICAL JOURNAL, as the agency through which I may be able to make my position clear to the medical profession of the city, and to the Anti-Saloon League, through which the prohibition element of the city may be correctly and definitely informed.

The phraseology of this letter is unfortunate inasmuch as the use of the words "rather than" seems to imply that I had contemplated making officially for you the offer embodied in your letter. This, of course, was not the case.

You doubtless recall that you came to me, on behalf of the Boston Liquor Dealers' Association, and offered to furnish, through my office, to any person who might be in need of whiskey or other alcoholic stimulant for the prevention or cure of influenza, and who might be financially unable to obtain it, such supplies of whiskey or other alcoholic stimulant as might be necessary.

I told you then that, in my judgment, the best medical opinion was to the effect that alcoholic stimulants had no preventive action in relation to influenza, that I wholly accepted that opinion, and that I had no use for any alcoholic stimulant for any person for the prevention of influenza.

The second document is the following reply of the President of the Boston Liquor Dealers' Association to the above letter:

Your letter of October 13th received, together with copy of a letter addressed to me which you ask me to criticize and approve before you send the final draft to the BOSTON MEDICAL AND SURGICAL JOURNAL. I thank you for the opportunity and accept the offer herewith.

Please understand that our Association is not hopeful of overcoming the animus on the part of the officers of the Anti-Saloon League and will not waste time in the attempt. We are a responsible organization, with millions of invested capital, regulated by law and licensed to do business under an annual vote of approval by a large majority of the citizens of Boston.

So far as our offer to the physicians of the city is concerned, the letter from you was the first intimation received by us that there was the slightest misunderstanding about it. The offer has been accepted at its face value by a number of physicians and we have been thanked for making it.

It would have been manifestly discourteous and irregular on our part to make any offer of stimulants to anybody for combating the influenza, without first consulting you. That was why we made the offer to you at the conference which you granted us for the purpose of offering you our hearty coöperation as an organization. The stimulant offer was only incidental.

Not only did you state, however, that any offer of the nature contemplated should be made direct, but you specifically suggested that, in addition to the doctors, we should include the District Nursing Association—an organization unknown to us up to that moment.

Your views on whiskey were outlined to us and you will recall that we took no exception to your views. Whether criticism on our part of methods of medicinal treatment in conflict with yours would have been accepted with equal equanimity by you is a question.

Our offer was made in the utmost good faith; it cannot be misunderstood by any one who wishes to understand it; and any attempt to pervert a simple act of common decency or to place us in a false light on the part of the Anti-Saloon League or other agitators who do not concur in the majority views of the voters of Boston, will be met with the facts, as herein outlined.

This correspondence makes clear the entire situation and should wholly remove from the minds of any who have entertained it, the slightest impression of unjustifiable action on the part of the Health Department. The personal attitude of the Health Commissioner, in which we editorially concur, is that the use of alcohol in any form for the prevention of influenza is not justified by anything we know concerning its physiologic and therapeutic action, nor by anything we know concerning the etiology of influenza. Whether alcohol shall or shall not be used in any case for the treatment of a patient suffering from influenza is a matter which must be determined by the physician in attendance, and upon which the Health Com-

missioner cannot and properly should not pass judgment.

AMERICAN MEDICAL BIOGRAPHIES.

We are glad to announce that arrangements have been made with the authors of the forthcoming "American Medical Biography" by which a certain number of selected biographies from that book will appear in the columns of the JOURNAL in the immediate future. The first of them is published in the present issue.

MEDICAL NOTES.

YELLOW FEVER IN GUATEMALA.—Cases of yellow fever have developed at San José, Guatemala, and the Commandant and the port doctor have died from that disease. A steamer which arrived at Acajutla on October 18, was placed in quarantine because it touched San José. The Salvadorean government has ordered that the frontier between Guatemala and Salvador be closed. Travelers will be permitted neither to enter nor to leave Salvador.

TUBERCULOSIS UNIT LANDS IN FRANCE.—The American Red Cross Tuberculosis Unit for Italy arrived safely in France on October 20 and proceeded at once to Rome. The unit consists of Miss Isabel Hall, public health nurse; Seymour Stone, field secretary; and Morgan H. Stafford, assistant manager, all of Boston.

PRESIDENT RECEIVES EUROPEAN SURGEONS.—Surgeons of England, France and Italy who are guests of the American College of Surgeons were presented to President Wilson at the White House on October 22. They will visit a number of cities before sailing for home. They will visit Camp Greenleaf, Fort Oglethorpe, St. Paul, and Rochester, Minn.; Chicago and Pittsburgh. The party includes Sir Thomas Myles of Dublin, formerly president of the College of Surgeons in Ireland; Col. George E. Gask, D.S.O., consulting surgeon of the British 4th Army in France; Maj. George Grey Turner of Newcastle-on Tyne; Maj. Pierre Duval of Paris, a member of the faculty of the University of Paris; Dr. Henry Bedere, an x-ray expert of Paris; Maj. Adrien Piollet of Ambre, France; Lt. George Loewy, instructor in the

Roeckefeller Institute for Medical Research in New York; and Prof. Raffaele Bastianelli, a member of the faculty of the Royal University at Rome and one of the best known surgeons in the Italian capital.

NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—On Tuesday, November 26, 1918, at 8.30 P.M., will be held the annual meeting of the National Committee for the Prevention of Blindness, in the Academy of Medicine, 17 West 43rd street, New York City. The chief speaker of the occasion will be Lieutenant Colonel James Bordley of Baltimore, whose subject will be, "The Government and Red Cross Work for Blinded Soldiers."

WAR NOTES.

MORTALITY OF THE AMERICAN WOUNDED.—The experience derived from four years of the war on the western front is very satisfactory from the point of view of the results of the casualties. It has been estimated that less than one in twenty of wounded soldiers die; that of all soldiers sent into hospital only forty-five in every 1,000 die, inclusive of those who die of disease as well as those who succumb to wounds.

CHOLERA IN PETROGRAD.—The cholera epidemic is decreasing in Petrograd, according to advices to the Swedish legation sent from Russia. For the first four days in October the number of cases in Petrograd was respectively, 84, 118, 90 and 42 against a total of 1,014 during the last five days of September.

2,134 WOUNDED INVALIDED HOME.—The number of sick and wounded landed in the United States from the American Expeditionary Forces for the week ended October 18, is 637. For the previous week 261 were landed. This brings the total for October to date up to 2,134.

RED CROSS URGES ALL NURSES TO REGISTER.—The Boston Metropolitan Chapter of the American Red Cross will undertake the important task of registering all women within the chapter district who are available for nursing in an emergency. The registration is not a pledge of service, but those who will be asked to fill out the questionnaire will include grad-

nate nurses, semi-trained nurses, midwives, practical nurses and graduates of the Red Cross course. The questionnaires finally will be assembled at Washington and the data tabulated. Surgeon General Gorgas has called for 1,500 yeomen between the ages of 35 and 45 for immediate service overseas to act as nurse aids. They must have had instruction in home care of the sick and one month's practical hospital experience. This is a military service and the pay is \$30 a month and maintenance. Women accepted for this service can begin their studies in home care of the sick at the Red Cross Chapters and through the Red Cross may obtain the necessary hospital training.

The American Red Cross Tuberculosis Unit for Italy, of which Miss Isabel Hall, public health nurse; Seymour H. Stone, field secretary, and Morgan H. Stafford, assistant manager, all of Boston, are members, has arrived safely in France, and will proceed at once to Italy. The commission will make a survey of public health conditions among the civilian population, particularly as to tuberculosis. The work is to be directed by Dr. William C. White of Pittsburgh, and Dr. R. H. Bishop, Jr., of Cleveland.

COMMISSIONS IN MEDICAL RESERVE CORPS.—Appointments to the Medical Corps are announced by the War Department as follows:

Captain: Dr. Edward A. Traey, Keene, N. H.

Lieutenant: Dr. Leslie E. McKinley, Newbury, Vt.

WAR RELIEF FUNDS.—On November 2 the totals of the principal New England War Relief Funds reached the following amounts:

Belgian Fund	\$713,482.24
French Wounded Fund	425,674.62
French Orphanage Fund	409,728.97
Armenian Syrian Fund	314,374.86
Italian Fund	219,175.96

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending October 26, 1918, the number of deaths reported was 436 against 203 last year, with a rate of 28.99 against 13.71 last year. There were 64 deaths under one year of age against 23 last year.

The number of cases of principal reportable

diseases were: Diphtheria, 23; scarlet fever, 8; measles, 8; whooping cough, 15; typhoid fever, 4; tuberculosis, 55.

Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever, 1; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 3; measles, 1; whooping cough, 4; tuberculosis, 20.

Included in the above were the following non-residents: Diphtheria, 1; tuberculosis, 1.

BOURNEWOOD HOSPITAL.—It is announced that Dr. Henry R. Stedman, after many years of service, has ceased his connection with the Bournewood Hospital, except in an advisory capacity. The management of the hospital has been taken over by Dr. George H. Torney, who has been associated with Dr. Stedman for the past five years in the conduct of the institution.

HOSPITAL BEQUESTS.—The Malden Hospital will receive \$5,000 by the will of the late Mary Benson of Brooklyn.

By the will of Miss Amelia Morrill, the Massachusetts Charitable Eye and Ear Infirmary, Children's Hospital and Massachusetts General Hospital will eventually receive part of the residuum of the total amount.

PROGRESS OF THE INFLUENZA EPIDEMIC.

The number of new cases of influenza in Boston continues to decrease. After being closed since early in the month, the theatres and moving picture houses have reopened. City Commissioner Woodward addressed the following communication to managers of theatres and moving picture houses: "Sneezing and coughing are factors of extreme importance in spreading influenza, and the public has a very definite knowledge with respect to these matters. May I ask, therefore, that proper notices will be printed on programs warning people about coughing and sneezing without the proper use of the handkerchief?"

Influenza is no longer epidemic in the First Naval District. Boston physicians reported only 99 cases. Other cities heard from included Worcester, 272 cases; Fall River, 235; Lawrence, 192 and 11 deaths; Gardner, 152; Springfield, 121 and 5 deaths; Lowell, 104 and 9 deaths; Brockton, 19 new cases and 9 deaths; New Bedford, 430 cases and 47 deaths; Gloucester, 174 cases; Manchester, 123 cases.

In the Army the epidemic is practically stationary. The epidemic is, however, more pronounced in the eastern section of the country than it is west of the Mississippi river. There is a serious epidemic in Oklahoma City, with

many cases in other parts of Oklahoma. Influenza cases reported from all camps since the epidemic began now total 279,945, pneumonia cases, 42,675, and deaths, 13,681.

In Brockton patients are being discharged from the field hospitals at the rate of a dozen a day. There were only 5 deaths reported here on October 18.

In New York the shortage of nurses is so marked that Health Commissioner Copeland appealed to business and professional men to volunteer to work in night shifts in the hospitals.

All theatres and motion picture theatres in California were ordered closed on October 18 as a result of the epidemic there. Schools and churches will remain open unless closed by the local authorities.

In Buenos Aires there are 200,000 cases of influenza but no deaths. Reports from Chile indicate that there is an extremely grave epidemic there, with a large percentage of deaths.

Governor McCall paid a visit to the influenza hospital maintained at Waltham by the State Guard and was much impressed with the work of the institution.

In Paris deaths totalling 472 in one week is the extent of the epidemic ravages. This shows an increase of 280 in the number of influenza deaths over the previous week, and the daily number has risen from 400 to 700.

Senator Lewis has asked an additional \$10,000,000 to fight the epidemic. This sum is intended to be spent by the health authorities of the different cities and states in coöperation with the National health officials.

Commissioner of Health Robertson has ordered every man, woman and child in Chicago to be vaccinated to prevent the spread of the epidemic. New cases reported on October 19 totalled 1,960 with 402 pneumonia cases. There were 137 deaths from pneumonia and 244 from influenza.

In Waltham the Public Safety Committee met to consider the advisability of the continuation of the Military Hospital.

In Attleboro, after a consultation with the State Department of Health, Dr. Ralph P. Kent, health officer, announced that the ban would continue on theatres and public gatherings another week.

In Quincy the Spanish influenza is waning. Six new cases were reported to the Board of Health. The 18 patients at the Emergency Hospital in the headquarters of the Neighborhood Club are recovering.

In Nashua, N. H., five influenza deaths were reported in the past 24 hours, bringing the total to 205 on October 20.

There is every indication now that the epidemic is disappearing even more rapidly than was expected. Seventy-two deaths, the lowest since September 22, were reported in Boston October 17. The Boston School Committee re-

opened schools. No new influenza cases were reported from any of the army posts or schools of Greater Boston on October 16. Dr. Woodward is skeptical in advising the use of a vaccine until such perfection in the preparation has been made that there exists no more doubt as to its efficiency.

The vaccine perfected by Dr. Warren M. Stone, city bacteriologist of Schenectady, N. Y., has proved such a success in combating the influenza that its use will be made more general. About 4,000 persons have been inoculated to date and less than one per cent. have developed the disease, according to figures made public by the health department. Public inoculations have been arranged for and several of the larger plants have taken steps to apply the preventative among their employees.

Dr. William C. Woodward is sending warnings broadcast against spitting and sneezing. He believes that the public can do much in helping to wipe out this disease.

Lawrence reported 78 new cases and five deaths. At the Emergency Hospital there are 120 patients. There were no deaths.

Quincy reports that it is virtually free from influenza. It is expected that the Emergency Hospital in that city will be closed soon.

Among the places reporting were: Fall River, 128 cases; New Bedford, 201 cases, 8 deaths; Plymouth, 18 cases; Taunton, 47 cases; Brookline, 10 cases; Cambridge, 31 cases, 6 deaths; Weymouth, 10 cases; Danvers, 10; Haverhill, 76; Lynn, 49 cases, 10 deaths; Malden, 11 cases; Lawrence, 78 cases, 1 death; Lowell, 104 cases, 9 deaths; Somerville, 21 cases; Waltham, 25 cases; Newton, 19 cases; Southbridge, 75 cases; Uxbridge, 24 cases; Worcester, 276 cases; Athol, 56 cases; Clinton, 13 cases, 2 deaths; Fitchburg, 28 cases; Conway, 28 cases; East Hampton, 113 cases (several days), 1 death; Holyoke, 101 cases; Ludlow 28 cases; Northampton, 22 cases, 4 deaths; Springfield, 324 cases, 33 deaths; Westfield, 79 cases; Dalton, 21 cases; Great Barrington, 360 cases (several days); Greenfield, 16 cases; North Adams, 85 cases; Pittsfield, 115 cases; Sheffield, 24 cases (several days).

In Washington, while the epidemic continues to spread among the civilian population generally, a continued decrease in the number of new cases at army camps led army medical officials to believe that the peak of the epidemic had been passed among soldiers. New cases of influenza among the troops reported during the 24 hours ending at noon on October 17 totalled 5,668 against 6,498 of the day before. It is estimated that there are now about 200,000 cases in Virginia. In California 6,500 cases had been reported up to October 14.

Reports to the public health service, recently, from 35 states showed that Spanish influenza still is on the increase in most parts of the country. It is still more pronounced in the

eastern section of the country than in the regions west of the Mississippi. Up to October 16 New Jersey had reported 107,839 cases, with 2,232 deaths, while in New York City 4,733 cases of influenza, with 336 deaths and 646 cases of pneumonia, with 287 deaths, were reported. Deaths in Pennsylvania until October 1 were reported at 10,046.

Westfield is apparently the only place in the Connecticut Valley where the epidemic shows an increase.

In Chicago the children are barred from the streets. There has been a general vaccination in this city of employees and other civilians. Deaths from the epidemic reported that there were 375 new cases, making a total of 2,020 cases in Chicago up to date.

In the Navy the Aviation School at Teah had three of the new cases.

The epidemic of influenza and pneumonia will be virtually wiped out in Boston by November 1, according to health officials. Massachusetts resumed its campaign against influenza and pneumonia confident that the epidemic would soon be under control. Dr. William C. Woodward, Commissioner of Health, sent a letter to Police Commissioner O'Meara congratulating him on the coöperation of the police department, and at the same time requesting him that the police be vigilant in the detection and arrest of persons found spitting in public places. Placards will be distributed throughout the city warning offenders in this respect, and also emphasizing the importance of not sneezing and coughing in public places. All theatres and picture houses have displayed these warnings on the screens and programs as a warning to their patrons.

Fifty mental cases growing out of the influenza attacks have been admitted to the Boston Psychopathic Hospital, and several were sent out to the Boston State Hospital for the Insane at Mattapan.

The latest reports for Boston show 33 deaths from influenza and three from pneumonia.

The Navy situation is greatly improved. In army camps, 2,772 new cases were reported, making a decrease of one from the report of the day before. Pneumonia cases decreased from 742 to 699 and deaths were 307 against 327 of the day before. The total of influenza cases reported now is 296,275; pneumonia cases, 48,327, and deaths, 16,174.

Connecticut reported a general decline in the number of cases but that the disease still is active in the larger cities. Over the southern and eastern section of the country, a general improvement in the conditions is shown. New York reported 759 deaths on October 24.

Surgeon General Brooks has recalled some of the nurses who have been working at the Lawrence base hospital for influenza and pneumonia patients, and has issued an order that no more patients will be received. There were

78 new patients and five deaths on October 24 at Lawrence. At the Emergency Hospital there are now 120 patients.

The following is a list of the latest reports from adjacent municipalities:

Fall River, 49 cases; Taunton, 59; Bridgewater, 11; Brockton, 19 and 6 deaths; Brookline, 1 case; Cambridge, 3; Easton, 9; Medfield, 25 and 4 deaths; Danvers, 25 cases; Everett, 10; Haverhill, 37; Lynn, 49; Salem, 4; Peabody, 11; Wakefield, 29; Somerville, 14; Waltham, 16; Woburn, 9; Brookfield, 17; Douglas, 14; Grafton, 88; Marlboro, 16 cases, 1 death; Southbridge, 31 cases; Sturbridge 31 cases (several days); Worcester, 91; Athol, 22; Barre, 50; Fitchburg, 15 cases and 3 deaths; Gardner, 56 cases; Leominster, 36; Winchendon, 18; Chicopee, 34; Ludlow, 28; Hatfield, 26; Northampton, 4; Ware, 176 and 29 deaths (for several days); Northampton, 4 cases, 2 deaths; Westfield, 27 cases; Great Barrington, 50; Greenfield, 16; North Adams, 31; Pittsfield, 41.

October 26th reports of the progress of the Spanish influenza epidemic show a new low mark in the number of new cases and deaths. Boston is now slowly but surely returning to its normal condition before the scourge hit it so hard. It was reported that during the highest period of mortality of the epidemic, as many as 3,074 cases were being treated at one time, while at the present time there are only 1,601 cases under treatment. Throughout the State there is a steady decrease in reports. State reports reveal only 2,840 new cases and 110 deaths in 104 communities. The Concord schools will, however, remain closed for another week.

Portland, Me., has improved to such an extent that the Board of Health at a meeting removed the ban on schools and public places. There has been a total of 3,212 cases of influenza since September 24, with 171 deaths.

In New York there is the greatest increase, with 5,390 new cases. Officials of the Interborough Rapid Transit Company said that because of the epidemic scare there were approximately 400,000 less passengers a day than a year ago. Thousands are walking to and from work. The school teachers who are stricken will receive their salary throughout their illness.

Washington, D. C., shows slight improvement in the influenza situation.

Successful inoculations of 10,000 soldiers at Camp Dix against pneumonia following influenza caused camp authorities to offer treatment to 10,000 more.

The situation in Chicago and the northern section of Illinois was declared improving, although the disease is spreading in other parts of the State.

Reports from 104 cities and towns show 2,840 new cases of influenza and 110 deaths.

These reports include 66 from Fall River, 196 cases and 16 deaths from New Bedford; Taunton, 93 cases, of which 65 are from the State hospital; Boston, 105 cases and 28 deaths; Brockton, 29 cases; Brookline, 17; Cambridge, 27; North Attleboro, 26; Beverly, 30; Chelsea, 26; Haverhill, 41; Lynn, 37; Malden, 16; Salem, 20; Lawrence, 60 cases and 4 deaths; Lowell, 136 cases and 5 deaths; Somerville, 33 cases and 15 deaths (for five days); Framingham, 42 cases; Southbridge, 29 cases; Worcester, 152 cases; Athol, 26; Fitchburg, 97 cases and 10 deaths in two days; Gardner, 60; Hardwick, 29; Winchendon, 13; Chicopee, 42; Holyoke, 149 (for two days); Ludlow, 27; Northampton, 24 cases and 1 death; Springfield, 149 cases and 6 deaths; Westfield, 46 cases; Great Barrington, 30 cases; North Adams, 66; Pittsfield, 13; Sheffield, 20.

Boston schools and theatres have reopened, and the city is itself again. Up to October 28 a total of 4,000 persons in Boston have died as a result of the epidemic in six weeks. Although there is a gradual decline in the number of deaths, the epidemic is not yet completely exterminated. The latest reports show fourteen deaths from influenza and five from pneumonia. There are 14 victims in the morgue of the City Hospital unidentified. Several are said to have been business girls employed in Boston, but who had no relatives in the city. The emergency health station in the police headquarters has been abolished.

Obituaries.

FREDERICK WATERMAN COWLES, M.D.

FREDERICK WATERMAN COWLES, M.D., fifty-two years old, formerly a physician in Boston and one of the students in the once-famous Springfield Collegiate Institute and a graduate in 1887 of the old school in Springfield, died in his home in West Brookfield, of bronchial pneumonia, October 15, 1918. Dr. Cowles was born in Hartford, Conn., on May 13, 1866, and received his early education there, going to West Brookfield to live when he was fourteen years of age. From there his father, Loring S. Cowles, sent him to Springfield to study. Following his graduation there, he studied a year in Boston, in the College of Physicians and Surgeons and then entered Dartmouth Medical School, from which he was graduated in 1893. Then for a time he practised in Boston and went to West Brookfield to take up his profession twenty-two years ago. He had held many offices of trust

in that town. At the time of his death, Dr. Cowles was awaiting a commission in the Medical Corps of the Army.

HOWARD BIGELOW JACKSON, M.D.

HOWARD BIGELOW JACKSON, M.D., died at Fort Oglethorpe, Georgia, October 13, 1918 of pneumonia, following influenza. Dr. Jackson was born at Peterboro, N. H., September 27, 1874. He was graduated from Harvard College *cum laude* in 1897 and from Harvard Medical School four years later, then serving in succession as house officer at Boston City Hospital, assistant physician at the Massachusetts Reformatory at Concord, and resident physician at the Long Island almshouse, Boston Harbor. In 1903 he settled in Melrose and joined the Massachusetts Medical Society and the American Medical Association. When Dr. A. E. Small entered the Medical Reserve Corps of the Army Dr. Jackson acted as secretary of the Middlesex East District Medical Society, and this spring he himself accepted a captain's commission in the Medical Corps.

He is survived by his widow and four children.

JOSEPH KIDD, M.D.

DR. JOSEPH KIDD died at Hastings, England, on August 20, 1918, after a few days' illness, in his ninety-fifth year.

He was born in Limerick in 1824, the seventeenth of eighteen children. He received a good general and classical education at a Quaker school in Limerick, where he acquired a love for classical authors that he never lost throughout his long life. In 1841 he became a pupil of Dr. O'Shaughnessy in Limerick. The next year he became assistant to Dr. Walter in Dublin, with whom he obtained experience in surgery, dispensary, and visiting practice, the value of which he always gratefully acknowledged. For six months he studied at the Rotunda Hospital in Dublin, where he witnessed the wonderful reduction in mortality which followed the bold action of the then Master, who secured free ventilation of the wards by the simple process of cutting off the tops of the sash windows so that an open space of two feet was left above each window. He had been attracted by the principles of homeopathy, and when a vacancy occurred in the New Homeo-

pathic Hospital in Hanover Square, he was elected house surgeon to the hospital, where he worked under Dr. Curie, father of Professor Curie, whose name, with that of his wife, is commemorated in the discovery of radium.

Shortly after the famine in Ireland, in 1847, he returned to England and resumed practice in London. In 1853 he graduated M.D. of King's College, Aberdeen, where he obtained a broader outlook with reference to homeopathy. In later years he disclaimed the title of homeopathist. His success in practice and the extraordinary influence he exerted on his patients, both high and low, were entirely due to his personal qualities. For many years he made a large income, but no one cared less for money, and he gave freely to those who needed help. He retained his mental and bodily powers far beyond the ordinary limits of age, and retired from practice only when he had reached his ninetieth year. Four of his sons and one daughter have followed their father's profession.

RALPH E. STEVENS, M.D.

DR. RALPH E. STEVENS of Marlborough, Mass., died suddenly on September 18, of uraemic poisoning. Services took place at the Unitarian church at 3 o'clock, when a large attendance of friends from all walks of life paid their last tribute to the loving memory of the physician. He was born in Marlborough forty-eight years ago and was the son of Charles E. and Albertina H. Stevens. He was graduated from Harvard Medical School in 1897, after which he spent a year and a half in the Boston City Hospital. He took up residence again in Marlborough, where he remained for the last twenty years. He was chairman of the Board of Health for the last fifteen years, and sacrificed much of his practice for the health of the community. He was a member of the Harvard Medical School Alumni, the City Hospital Alumni, the Massachusetts Medical Society and the American Medical Society. Rev. Ralph Conner, in speaking words of consolation, referred to him as a noble exemplar of the medical profession and an earnest devotee to charity.

Miscellany.**PREVALENCE OF SPANISH INFLUENZA THROUGHOUT THE UNITED STATES.**

RECENT issues of the United States Public Health Reports (Sept. 27 and Oct. 4) indicate as follows the prevalence of epidemic Spanish influenza throughout the United States:

Alabama.—An extensive epidemic is reported from Florence and vicinity.

Arkansas.—There is an outbreak in Lonoke County.

California.—Cases have been reported from a number of places in the State.

Connecticut.—On September 30 it was estimated that 9000 cases occurred in the State.

District of Columbia.—From September 21 to 30, inclusive, 177 cases were reported. On October 1 there were 162 cases reported.

Florida.—Epidemics have been reported from Key West and Pensacola.

Georgia.—Cases have been reported from a number of places in the State.

Idaho.—On September 30 15 cases were reported in Canyon County.

Illinois.—October 1 the State health officer telegraphed: "Situation in communities adjacent to Great Lakes Naval Station shows tendency to improve. Disease spreading along main traveled routes." On October 1, 374 cases were notified in Chicago, and there were 14 deaths from influenza and 45 deaths from pneumonia in Chicago on that day.

Indiana.—An epidemic at Evansville was reported September 25.

Kansas.—Cases have been reported from a number of places in the State.

Kentucky.—The number of cases at Louisville is said to be decreasing.

Louisiana.—On September 14, 1918, the steamship *Harold Walker* arrived at New Orleans Quarantine Station from Tampico, Mexico. The vessel sailed from Boston September 1. Three deaths had occurred on board the ship since she left Boston, and there had been a total of 15 cases of illness. Six members of the crew were ill on arrival. They showed considerable elevation of temperature, ranging from 37.6° to 39.6° C. They all complained of pain in the head, cough, pains in the chest, back, and extremities.

Maryland.—During the three days ended September 30, 77 cases were notified in Baltimore. Cases have been reported from many places in the State.

Massachusetts.—On October 1, it was estimated that there were at least 75,000 cases in the State, exclusive of cases in the cantonments. During the week ended September 30, 788 deaths from influenza and 196 deaths from pneumonia were registered in Boston.

Minnesota.—The disease has been reported from Wells Village, Faribault County; North Branch, Chisago County; and Minneapolis.

Mississippi.—Epidemics have been reported from a number of places in the State.

Montana.—The disease is epidemic in Sheridan and Fergus Counties. Cases have been reported from other counties.

Nebraska.—The disease was reported prevalent throughout the State on October 1.

New Hampshire.—A number of cases have been reported in Portsmouth and vicinity.

New Jersey.—The State health officer telegraphed September 23 that influenza was unusually prevalent.

New York.—A report dated September 21 stated that 61 cases had been reported in New York City.

North Carolina.—Cases have been reported from Raleigh. Four hundred cases were reported from Wilmington. All the hospitals are crowded.

Pennsylvania.—Comparatively few cases have been reported among the civil population. A few cases have occurred at Hog Island, and some are said to have been found in Pittsburgh.

Rhode Island.—The disease has appeared at Providence, East Providence, Newport, and Warwick.

South Carolina.—One hundred cases have been reported at Newberry.

South Dakota.—A few scattered cases were reported September 23.

Tennessee.—Two suspicious cases were reported at Memphis.

Texas.—Thirty-five counties report influenza, from 1 case to 2000 cases per county.

Vermont.—The disease is present in all parts of the State, the largest epidemics being at Middlebury, St. Johnsbury, Lyndonville, St. Albans, Montpelier, Barre, Randolph, and Northfield.

Virginia.—The disease is epidemic in many parts of the State.

West Virginia.—Outbreaks have occurred at Hinton, Bluefield, Martinsburg, Charles Town, and Nitro.

The following table indicates the number of deaths from the influenza epidemic in the leading cities:

CITY	DEATHS FROM INFLUENZA DURING WEEK ENDING					DEATHS FROM PNEUMONIA (ALL FORMS) DURING WEEK ENDING				
	September			October		September			October	
	14	21	28	5	12	14	21	28	5	12
TOTAL	19	172	776	2548	6122	297	388	774	1821	4409
Albany					34	2	0	2	2	11
Atlanta					5	7	*	4	7	25
Baltimore				30	192	7	6	19	87	371
Birmingham						3	*	2	12	30
Boston	19	172	600	991	850	27	93	175	225	177
Buffalo				7	82	8	11	16	41	98
Cambridge			82	113	100	7	4	23	27	15
Chicago			17	171	571	15	24	74	246	476
Cincinnati				3	47	5	4	6	15	20
Cleveland				3	18	5	8	10	15	22
Columbus					15	1	4	6	10	13
Dayton					20	2	1	2	5	11
Denver						3	3	8	19	*
Fall River				86	192	0	5	6	11	*
Grand Rapids						2	*	1	3	*
Indianapolis						3	6	10	24	*
Jersey City				16	87	2	6	21	7	*
Kansas City, Mo.				26	75	5	*	10	11	*
Los Angeles						9	*	2	14	*
Louisville						3	9	4	14	*
Lowell			16	29	37	1	8	16	64	104
Memphis					13	*	*	*	*	67
Milwaukee					15	4	5	13	15	54
Minneapolis					37	2	*	11	13	*
Nashville						2	*	3	5	29
Newark				31	119	*	*	*	*	70
New Haven			11	30	68	0	2	4	6	*
New Orleans				12		5	*	3	17	*
New York				298	979	74	98	145	434	1642
Oakland						4	0	2	3	*
Omaha						1	*	2	7	*
Philadelphia				399	1097	20	32	76	307	938
Pittsburg						12	17	*	*	*
Portland						4	*	3	3	*
Providence				61	125	4	10	20	37	57
Richmond						4	2	3	*	*
Rochester					14	1	1	7	6	22
St. Louis					40	12	13	20	25	46
St. Paul					31	3	*	3	1	*
San Francisco						6	14	15	15	*
Seattle					54	4	2	4	*	*
Spokane						2	*	1	1	*
Syracuse			38	125	216	0	*	7	14	3
Toledo					2	2	0	5	3	7
Washington, D. C.			12	116	387	10	*	17	57	101
Worcester						4	*	*	*	*

* Not reported.

† Included with deaths from influenza.

APPOINTMENTS.

The Massachusetts State Department of Health announces the following appointments:

Dr. J. J. CARROLL of Holyoke, Acting Assistant Surgeon, U. S. Public Health Service, to be Chief of the Subdivision of Venereal Diseases, State Department of Health of Massachusetts. Lieut. Carroll succeeds Major Alec Nicol Thomson, who is now in charge of the work of correlating the efforts directed against venereal disease in the New England States in behalf both of the Army and of the U. S. Public Health Service.

Dr. LILY OWEN BURBANK of East Bridgewater to be Director of Educational Work for Women, of the Subdivision of Venereal Diseases.

SOCIETY NOTICE.

MASSACHUSETTS THERAPEUTIC MASSAGE ASSOCIATION.
—The next meeting will be held at the Hotel Brunswick, at 7.45 P.M., Tuesday, Nov. 12, 1918.

Dr. Edward M. Hartwell will tell us about "Massage in Germany"

Dr. Walter B. Swift will address the Society on "Recent Results in the Treatment of Paralysis Agitans with Movement Exercises."

DOUGLAS GRAHAM, M.D., *President*,
MISS AGNES J. KERR, *Secretary*.

RECENT DEATHS.

Dr. EUGENE HULL died, on October 23, 1918, at an Army camp at Little Rock, Ark. He received a commission in the medical service last summer, and two months ago was ordered into the service. Particulars of his death are not known here.

Dr. FRANCIS E. ROBINSON died on Oct. 19, 1918, after a year's illness, at his home in West Newton. He was born in Waterloo, N. Y., 73 years ago. He was educated at Syracuse University and at the University of Michigan, later taking up medical practice in Brooklyn and remaining there until his removal to West Newton. For 50 years he was a member of the American Institute of Homeopathy.

The Boston Medical and Surgical Journal

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Original Articles.

MODERN ART AND MASS PSYCHOTHERAPY.

By SMITH ELY JELLIFFE, M.D., Ph.D., NEW YORK.

POWER and self-expression are synonymous terms. Both, moreover, are merely word symbols for that force, or energy, which lies at the source of our nature and informs every part of it, or seeking to do so, wages an intolerant strife against any portion which thwarts this fundamental urge or fails in contributory response. Its inherent tendency is to ally all the capacities of one's being and open all the avenues toward completeness of expression. It seeks in the same imperious way to overcome external objects in turning them to its account.

The term imperious implies not the tyranny of ruthlessness but suggests rather the rightful possession of this all-embracing *imperium* which claims all nature for its territory of activity and molds and conforms all objects to its service. For its service rightfully considered, though often grievously distorted in subjective and objective hindrances to expression and always incomplete, is nevertheless inherently a constructive and a creative one.

The phrase "creative in art" has been so bandied about that like many of our most sig-

nificant word symbolisms the dynamic reality which lies behind it escapes our thought and appreciation. What, then, is the creative? Deep down in the individual human life and far back in racial history, as far as even imagination can guide us, we discover at work this inherent dynamic necessity to create, to impart life that it may continue progressively, immortally. It is only in the higher refinements of the intellectual life that we distinctively recognize this impulse and bring it to definition. Long before that, however, individual and race alike are emotionally aware of its overmastering power. It sweeps us on far beyond the confines of mere physical procreation, important and intense enough in itself, but requiring for its fullest meaning and purpose the manifold desexualized forms of the action of the creative impulse, those which man has discovered and developed and those which yet lie before him.

The creative need and with it the power idea inseparably bound with art, whether in its broader or more limited technical sense, is historically lodged in the etymology of the words employed to designate art in various languages. Sidney Colvin writes in the *Encyclopedia Britannica*: "The Latin *ars*, according to the prevailing opinion of philol-

ogists, proceeds from the root AR, of which the primitive signification was to put to or to fit things together. . . . The Greek τέχνη . . . is by its root related both to τέκτων and τέκνον, and thus contains the allied ideas of making and begetting. The *proprium* of art in the logic of the Stoics, 'to create and beget,' was strictly in accordance with this etymology. The Teutonic *Kunst* is formed from *können*, and *können* is developed from a primitive *Ich kann*. In *kann* philology is inclined to recognize a preterite form of a lost verb, of which we find the traces in *Kin-d*, a child; and the form *Ich kann* thus meaning originally 'I begot,' contains the germ of the two several developments, —*können*, 'to be master,' 'to be able,' and *kennen*, 'to know.' We thus see that the chief Indo-European languages have with one consent extended a name for the most elementary exercise of a constructive or productive power, till that name has covered the whole range of the skilled and deliberate operations of sentient beings."

Man's creative impulse has not found his materials always ready at hand nor his means of manipulation. If his ego-consciousness has oftentimes looked backward with a self-gratulatory "*Homo sapiens*," nevertheless his history has been one long practical illustration of *Homo faber*.² Man the craftsman, the smith who must not only mold all to his one great purpose but must even fashion his own tools for the work, inventing them, fitting them into shape, altering and refashioning them with enlarging experience and the need in expansion for more adequate forms of expression, this is the being with whom we have to do, who, when all is said and done, commands our serious attention and sympathetic approval. We need not count on his failures, his inadequacies. We are on the lookout for his successes as so much accomplished in the broadening of opportunities for expression and thus attaining by degrees an ever fuller immortality. The failures reveal the limitations still existent and the hindrances within or without and are therefore guides pointing to a wiser and more effectual choice and use of means.

It is to a certain degree the incompleteness of result in individual striving, together with inability to reach the highest and fullest expression which leads to the diversity of

methods of self-expression and individual differences of comprehension of these methods.

The field of modern art furnishes us with striking illustration of these various principles and facts. Here, if anywhere, the demand for more diversified expression has made itself felt. Here also *Homo faber* has had to construct his tools and adapt them to newly felt needs and by so doing has freed certain repressions which had long been holding the sense of power under restraint and against which it necessarily chafed. We might, therefore, almost call modern art a form of practical psychotherapy. In fact, we need not hesitate to do so, from the point of view which regards disease as the want of perfect adjustment to environment and inadequate control of that environment, and, therefore, limitation of creative power. By just so many tentacles, as it were, by which the modern artist touches that environment and reaches it with a new power to put it into an extended variety of expression, by so many means does he touch among other issues some of the repressed factors of psychical life in others, which, too, seek outlet and which are sometimes left behind in the process of sublimation to become active sources of mental distress and disarrangement or of perverted exercise.

This does not mean that the art of today reaches only a lower degree of attainment. Nevertheless it cannot be disputed that it is rich in expression of many impulses and tendencies, undeveloped and infantile forms of the great initial creative impulse, which find in this art a symbolic expression formerly denied them so openly and freely. Modern art is a product, and a factor no less in its establishment, of a condition of society toward which humanity has striven under its bonds. This state of things allows a greater latitude for individual expression and conduces to larger individual conception. It tolerates a symbolic admission and pictured representation of the "polymorphous tendencies" of human desire which find expression at varying levels of psychical development and culture and gives safe outlet for artist and spectator alike. Time was when any deviation from the accepted modes of outlet and departure from the thickly conventionalized covering which hid vital dynamic meanings met with very real persecution, religious ex-

communication or at least complete social ostracism. Now, at the worst, there is only a supercilious ignorance and lack of understanding on the part of those who still remain safely and adequately entrenched in convention. Otherwise culture provides a freer atmosphere for creative expression permitting various types to work out fittingly their own salvation and offer to others the same outlets which the latter are less able to put into expression for themselves.

A simple illustration may serve as a concrete example of the freedom which the modern artistic conception has brought out of the formal conventionalities which for a vast number harmfully repressed too much. The illustration may seem grotesque to some, as bizarre as, superficially, much of this art itself seems. Remember, however, that we are dealing with undeniable facts in human life, facts which a sober analysis of a psychical maladjustment and consequent ineffectualness brought to light. Walter Pach has recently exhibited a little picture named "The Snow." It is a marvel in the depth of conception displayed in its dramatic employment of color and of the representation of the three dimensions enhanced by the rhythmic use of the line, as Willard Huntington Wright³ has expressed some of the chief features of the modern methods. No snow is visible to the superficial observer, but to one who has learned to follow psychical life beneath the surface there is striking imagery and analysis of what may lie within snow for the sense of power and its expression in the artist's result. The artist's free interpretation sets itself in marked contrast over against the rigidly limited expression allowed by her conventional world to a patient who had made a quite different use of the same mental factors. Her life had been wasted in a futile attempt to deny through long accepted terms the elemental impulses which were striving behind the pure white religious exterior which was trying to congeal these elements in a sublimation which had become empty for this individual, would not "work." Her struggle had been a long and most painful and incapacitating one against the idea of moral impurity mostly of a pronouncedly sexual nature. It was originally it may be said, entirely of a sexual nature, a analysis plainly showed, but while the sexual

character of it persisted painfully into consciousness it had also been pushed over upon all sorts of moral sinfulness and the theological idea of uncleanness in all respects before God. This was all, be it understood, in the patient's phantasy and the sexuality was largely of an infantile phantasy character. This in turn extended itself to a compulsive need for striving after eternal physical purity as well. So there had resulted in the patient's daily life a most elaborate and oppressive prayer ceremonial, the burden of which was the prayer for cleansing, and with it a constant handwashing which in turn had extended itself to elaborate ceremonial observances in regard to cleanliness of all parts of the body, particularly the genitals, at the time of prayer or other religious exercise.⁴ "Wash me and I shall be whiter than snow" was literally the burden of her ineffectual cry against the impulses to power she could not understand and control. It took a long course of psychical analysis and revaluation, reëducation, to melt away the cold convention and reveal to her the rightful reality of the depth of warm vital color beneath, manifest in the impulses against which she battled, and to unite these struggling elements of power in contact with reality which created useful sublimated products instead of freezing over their vitality through a meaningless unproductive exterior. In this instance the artist's conception possesses a more truly pragmatic value than the psalmist's chaste prayer.

This gives us a glimpse of the service of much of this modern art in discovering and utilizing such multifarious and, we might say, unexpected ways of discharge. They are ways of the artist's own creation, for the creative impulse finds no small part of its satisfaction in the necessary invention and fashioning of its own tools. Therefore, the artists have developed form and color in response to the increasing need in the manner of sublimation which discovers itself in the new conceptions and evolution of these as much as in the use to which they are put.

A study of unconscious symbolism adds a further value to their employment of these elements even to the extravagance in which, for example, certain of their colors predominate and appear again and again. The power with which one is able satisfactorily to lay hold of nature for himself and for those to whom his art is a permanent message lies apparently for

some in the undeveloped infantile phantasy form which deals with food and fecal birth phantasies. Such an artist's efforts, perhaps, are not far from the infantile and primitive level, which maintains a certain influence still upon all adult life, but which is particularly prominent in neurotic immature individuals. Here, then, is opportunity for power satisfaction on this level in the liberal use of brown, in the still-life studies pertaining to kitchen and dining table, the contemplative studies of chocolate grinders with the chocolate "spilt all over it," according to a comment overheard in passing. The food symbolization, associated as it is in the pictures with symbols suggestive of reproduction, paints with lavish hand a universal complex which bears much more than a nutritive meaning in its self-expression of one of the earlier forms of power seeking.

Another complex expresses itself and so discharges its desire in the purple that surrounds particularly the human figure. The force of this symbolism, too, is discovered where we find the need and the attempt for expression in so marked a degree, in the unconscious life which is revealed through the neurotic symptom, the dream and the day phantasy. As the purple plays there about the death phantasy in various aspects, self-destruction or self-immolation and thus a height of ecstasy through death, or the unconscious wish of removal by death of a rival, so in the phantasy to which the artist gives expression there is probably a subtle gratification of his instinct to power which would thus symbolically experience the death ecstasy, or the triumph through death over a rival, or the subjugation of the loved one, in that close unison between death and erotic love which a study of the unconscious has revealed. The revelation of the sense of power that comes to one on even a superficial examination of Wilson's "Nico and Angel," where the virile strength and determination depicted in the faces of the bull-fighters is accentuated by the skillful introduction of a deep rich blue into their garments confirms also the psychoanalytically discovered association of blue with a strong desire for mastery. The psychology of colors as revealed in work with the unconscious is yet too much in its infancy to allow more than a few suggestive hints of the value which the newly developed use of color through the work of the modern school has in these manifold reachings

after expression. Their use of color and their interpretation of it must bring us into a deeper understanding of its unconscious meaning and therefore expressive capacity. The symbolic use of color is as old as the first repression of actual meaning into the unconscious and its escape externally only through symbolic forms. This freer use of color as art has developed it provides more extensive outlets for the ancient repressions.

There is a complexity of desire and a breaking from restraint in the use of forms in manifold multiplicity with the free employment of the line, which the artist breaks and shifts to follow freely the meaning conveyed. This also is full of the significance of active desire. It is to them, in impressive form, motion, which is the symbol for the inexpressible something within which demands all this endeavor. Lanier's clear vibrant lines have sung it in poetry:

"I will fly in the greatness of God as the marsh-hen
flies
In the freedom that fills all the space 'twixt the
marsh and the skies;
By so many roots as the marsh-grass sends in the sod
I will heartily lay me ahold on the greatness of God."

There is no limit to the desire that moves with such a beating of wings nor is there any limit to the multitude of roots through which this mastering contact with reality must take place. This desire has worked through all mysticism, all poetry, through the setting up and bringing down of governments, through all the progress and invention of practical life. But the special diversity of manifestation which is here under discussion has been able to throw out many fibres and rootlets which have otherwise been stifled and cut off from healthful activity. Instead it now presses itself into reality through these and finds them likewise living channels toward certain varying degrees of immortality and therefore adequate for expression.

We cannot all attain to an adequate discharge of our sense of individual power in the same way nor find the same forms of expression satisfying. The impulse to power and the need to express it and impress it upon our own contribution to immortality is the same, while the means differ widely. In view, therefore, of our common need as well as of the existence in all of us of unsuspected factors in our psychical life which we share with all, it behooves us to recognize the service which this field of art renders to ourselves and to others in the path of

sublimation. It may suffice for harmless discharge of otherwise repressed and therefore disturbing partial impulses. Again it may be the very level of sublimation that gathers one's forces into effective unified production, or it may point the way to higher and still more adequate direction of the instinct to creative power.

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SHALL WE NEVER LEARN?

BY D. M. LEWIS, M.D., NEW HAVEN, CONN.

NOT only because so-called Spanish influenza is epidemic in isolated areas of this country, but because of the daily board of health publicity given on the prevention of its epidemicity in such communities and its irrationality, more than remonstrance may be in order. It may be in order to take stock as a preliminary as to terminology. The late spring and summer saw influenza epidemic in England, statements to the effect that there was a frequency in France and Germany, later that it had been epidemic in Spain and spread to Italy. At the same time it was in the interior mountain regions of Peru, so universal as to close down mining and smelting works. In Italy it was recognized not as influenza, failing the respiratory signs. In England there was a following "new" encephalitis. Nowhere has it been recognized as due to the influenza bacillus, but generally termed influenza or grippe from the two predominant characteristics, speed of spread, and pneumonic complications. Because of these two characteristics communities give out the usual antiquated publicity: avoid exposure by not going where there is illness (to warn the public it is stated that cases must be reported and rooms at least placarded), avoid public places and gatherings, avoid coughing or sneezing in individuals, secure proper ventilation and observe usual rules of hygiene. Proper care of the spread becomes dependent, then, on the proper care of the one ill, and any spread depends on the usual abortive cases not ill in bed. These are the stock rules for all epidemic diseases, and from time immemorial, as is history, have never stopped any disease. Recurringly, Nature strives by her experiments (not crude as some sanitarians state), to demonstrate how

she works. Recurringly with each epidemic the same time-worn stand is taken, although more intelligent study may be given the cases, while the laboratory is stimulated to the study of an antitoxin and preventive inoculation. What may we learn in nature's field if we go hunting. Embodied in a former paper,¹ the result of immediately previous, interim, and the immediately following period of the last influenza or grippe epidemic, I showed that, whether due to the influenza bacillus, a streptococcus, as was evident, or a pneumococcus as conceivable, the important demonstrable facts were that as the greatest public health problem of the day it had numerous primary infections leading to fatalities, and that it stirred up previously latent infections, causing fatalities, and, as well, stirred up late frequency of such infections. The primary infections were respiratory, gastro-intestinal and central nervous system; it stirred up preëminently tuberculosis, measles, diphtheria, scarlet fever, meningitis and poliomyelitis. The method of combat was start with the case and by examination of all previous immediate contacts find the carrier. Go further by assuming responsibility; teach the educated public what head colds mean, and to disinfect them; go among the uneducated, the school children and the institutional, and by nurses seeking head colds, isolate and cure specific unusual head colds, watching the ordinary one that it should not later become specifically contaminated. I have shown the number of such unusual germ-laden nares that may be found by simple inspection; that by culture we find them either the streptococcal grippal or in combination with diphtheria, the pneumococcus, the meningococcus, or the three other kinds of streptococci found epidemiologically to lead to measles, scarlet fever or poliomyelitis. Having found them merely by inspection, having isolated them and cured them by the constant use of old fashioned—well founded on clinical experience—nasal antiseptics, there have been two facts demonstrable: control of by absence of secondary and return cases and the continued consequent diminution of cases and deaths from each and all the other respiratory diseases, in terms of previous similar epidemics and in terms of other neighboring cities having the same condition.

Incredulity and complacency, foster parents of opposition, were shown by the Board of

Health Commissioners of this city in latter 1916, when I requested that gripe be made a reportable disease; that because from September, 1915, to September, 1916, I had isolated 21 nasal carriers of diphtheria, 8 of scarlet fever, and 28 of streptococcal gripes, the latter predominant problem called for an added force of nurses to do this work. Both were refused. Appeal the following month to the physicians through the monthly bulletin to report cases that contact carriers might be found also, brought no attention. Impersonally, the attitude was because the sponsor was "walking alone." At basis, then, an epidemiologist alone of any in any community of this country, working in the field rather than as others working on cases or suspects, finds definite conditions which, with the partial treatment available from inadequate assistance and time, can show definite results. As impersonal, have there been any, and what corroborative findings, of others working on cases only?

Literature has been full of such confirmatory material, isolated in places and amount; disjointed and lacking basic foundation. Among them is the face mask to control cross infection; the demonstration of nasal sinusitis,^{2, 3, 4} of cases with the inference that such, as chronics may be the starters of epidemics; the confirmation that the streptococcus throughout the army camps of 1918 and not the pneumococcus was the death-dealing or complicating factor; that carriers of such were made in clean wards by attendants; that a certain per cent. of carriers showed signs of inflammation; that during an epidemic of pneumonia there were cases of scarlet fever in such smaller proportion as to lead one to ask why if milk streptococci caused the frequency of pneumonia there were not more cases of scarlet fever; that after an attack of measles the one ill within a month developed another kind of measles; that a scarlet rash was frequent in gripe as shown by the absence of scarlet fever during or at the expiration of the attack; that epidemiologically there is a connection between influenza epidemics of the winter, following cerebrospinal meningitis and yet later poliomyelitis.⁵

If now we fit all these observations of the epidemiologists who find such from consideration of cases only, with the previous observations made by me from finding what was the cause of producing each case as everywhere is done with typhoid, as we have done with diph-

theria, scarlet fever, and less with the other respiratory diseases, I can see no lack of confirmation of why complications of cases arise and why there is not an orderly sequence. The essential confirmation of the carrier has not been reached for two reasons: first, the theory that spread of disease radiates from the one ill holds the center of the stage, or if the carrier among the contacts is also considered, it is from the standpoint of what cultures show not what the nasopharynx shows. Field work has shown the fallacy.

Because, then, other equally observant epidemiologists could find, and would, the same basic point if they would so examine all contacts of the one ill, or all individuals if there were no cases; because a respiratory disease is epidemic and non-controlling preventive measures are advocated; preëminently because of the sequence of what diseases follow respiratory gripe, I submit that it is in order for boards of health to assume the responsibility not only of investigating the unusual head colds found among contacts of cases and of the populace at large, irrespective of cases (the pharyngeal involvement alone is at the time of lesser importance—why, I have previously shown) but compel by isolation and constant nasal inhalation of a rational antiseptic, the cure of that contagious material which makes cases faster than cases can make cases and carriers faster than cases can make carriers. (Confirmation of nasal treatment was offered possibly as a coincidence by one army camp, the only one using it and the only one having not only less following frequency of the epidemic disease, but of other diseases following. This was dichloramine-eucalyptol, analogous to, though from my experience of no greater value than, camphor-eucalyptol.) The chronic recurring carrier will be found to be more generally the one who has previously had the disease, has a chronic sinus and nasal deformity, presents more than the innocuous watery head cold, but transmits to such latter the organism and not infrequently more than one variety. That cases follow not the original carrier but consequent on the fresh carriers, who apparently, from the duration and the course of the nasal inflammation do not have necessarily sinus involvement, is as apparent in streptococcal, as is known in diphtheritic carriers. The simplicity of control measures are those formerly assured under sanitary premises; the passing

by of normal naso-pharynges, the further observation of ordinary head colds only when chronic demonstrated carriers are simultaneously or later found in the neighborhood or known friends of such individuals. Not the masking of attendants and carriers carried to the outside world demonstrable carriers, not the treatment of known cases by an isolation hospital, is the cure of any respiratory disease frequency. It lies in the fear of, the demonstration of, and the cure of specifically laden nasal discharges primarily, the control of which fundamentally lies in the board of health; not in educational propaganda, but by direct action among that part of the populace where incidence of any and all diseases always exist for reason of carelessness and inattention, not always coincident, and poverty likewise not always coincident with the former two. The lesser populace and the physicians should represent the class to be reached by education—yet theory there does not always work out.

Because then of a personal knowledge of how to control respiratory frequency gained from applying procedures during and after an epidemic of grippe or influenza so called, in terms of similar rational procedures gained previously from other respiratory diseases, and all such observations have been confirmed in disjointed parts though it be (because of consideration of cases only), I would make an appeal for result-gaining methods as against the same ineffectual publicity-case controlling methods as have never controlled not only the dominant disease but any consequent following disease as well. The fact that this community does not know from the comparative number of cases contrasted with the coincident high frequency of our neighboring cities whether they have the disease, is exactly measured by the large numbers of respiratory carriers, mainly streptococcal, who have been found and cured during the past two and one-half years during and following the last epidemic. For that reason we can predict not only less frequency of the disease and deaths but similarly a less frequency of later following diseases,—measles, diphtheria and encephalomeningomyelitis,—than our neighboring cities. We all have the same state law, put out by each board of health; each has the same newspaper publicity, laying the responsibility for spread on the public or on physicians for not reporting cases. It is stated to be standard. Standards are more slowly changed

among the medical profession than even the law. Is there not sufficient evidence at a time that even minor illnesses mean retardation of work at the least, let alone fatalities, to break away from standardization by trying out accumulated evidence?

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NEUROSES AMONG RETURNED SOLDIERS. TYPES AND INDICATIONS.*

BY CAPTAIN CLARENCE B. FARRAR, C.A.M.C., OTTAWA.
Psychiatrist to the Military Hospitals Commission of Canada.

(Concluded from page 589.)

CASE 6.—*Trench Spine*.—This soldier, formerly a collier, enlisted in August, 1914, aged 34. He reached France with the first Canadian contingent in February, 1915, and saw practically continuous service until his casualty in August, 1916. He was in the trenches at Ypres and buried during bombardment, a timber falling across his back. From that time he complained of severe pain in the lumbar region and has been unable to stand erect. A medical board held September 22, 1916, noted: "He still has pain in the lumbar region, part of which may be functional." For two weeks following the casualty patient was unable to walk.

Returned to Canada February 11, 1917. Patient stands in a stooping posture with torso tilted to an angle of about 60 degrees from perpendicular. Walks with a cane. When sitting he bends over in the same way, inclining his body to right. He states that it is quite impossible for him to assume the erect attitude. When directed to lie on his back he raises his shoulders from the bed by supporting himself on his elbows; and when this support is removed and his shoulders are forced down, the thighs are at once flexed in compensation. He can be brought gradually to a posture approximating complete extension. This manipulation is accompanied by some tremulousness and complaint of pain in the back. There is hyperten-

* Paper read at the Symposium on Psychiatry and War held by the New York Psychiatric Society, Dec. 5, 1917.

us of the back muscles which increases on passive movement.

Invalid makes no other complaints and physical examination shows no cause for disability. There has been no injury to the veterbrae or cord and no present evidence of contusion or other lesion of the soft parts. This is the functional nervous disability which the French call *eamptocormie*, and which is the legitimate descendent of "railway spine."

CASE 7.—*Hysterical Anaesthesia*.—This case of "shell shock" never escaped from camp on this side of the water. He enlisted about May 10, 1916, giving his age as 44 (believed to be 55), occupation—butcher. In June, following some exposure to dampness he began complaining of pain in the back and was treated at first for lumbago. Soon after he was complaining of loss of sensation in the legs and the anaesthesia promptly became general. A moderate degree of arteriosclerosis, with blood pressure of 175, was practically the only somatic finding. After two months in the army, patient was discharged as medically unfit.

His case unfortunately attracted some attention medically, and he has suffered from a multiplicity of diagnostic suggestions, including locomotor ataxia, arteriosclerosis of the nervous system, ascending paralysis, syringomyelia and hysteria. Ascending paralysis appears to be the diagnosis which the patient recalls with the most satisfaction.

In this case a source of grievance existed from the beginning. The patient maintains that he should have received special pay as a meat cutter but received only the ordinary pay of the private. The complaints which he promptly made on this account were without result.

His discharge he looked upon as very unjust, and symptoms of disability increased. He repeatedly requested to be re-boarded. He was finally admitted to hospital and a medical board, November 27, 1916, reported: "After prolonged observation in hospital this board is of the opinion that this man has no organic nervous disease but is a marked case of hysteria with arteriosclerosis." Physical findings were practically negative for a man of his age. There was apparent loss of sensation over entire body to pain, heat and cold, although a severe pin prick produces a slight involuntary withdrawal movement; and when the test was

made with patient asleep he awakened with a start, asking what was being done to him. There is apparent loss of stereognostic and posture senses but lack of coöperation jeopardizes these findings. Patient regularly complains of a sense of great weakness and loss of nearly all motor power. He would only partially flex his fingers in giving a hand grasp and declared that he had very little use of his hands and could not possibly undertake any sort of manual employment. His habitual occupation of filling and lighting his pipe he performed with great facility.

Knee jerks greatly exaggerated; ankle clonus present; gait pseudo-spastic; pupillary reflexes present but possibly slightly sluggish; skin reflexes active; no Babinski, Wassermann negative. When at rest there is no muscular tremor, but violent shaking is likely to follow manipulation or directed movements, and during examination is apparently unable to walk on account of shaking of his legs. When in the ward with other patients only, he shuffles about without difficulty.

In view of the fact that the disability arose during service, this man was re-attested and put on pay and allowance from the time of his discharge and admitted to the special hospital at Cobourg, April 3, 1917. Here it was impossible to secure his coöperation in any sort of employment. He maintained the attitude of great weakness and helplessness; his chief preoccupation was the pensionability of his disability; and inordinate selfishness was constantly in evidence. The comfort of his family never occupied his attention. He felt that their duty was to wait upon him, and when at home he was attended by his wife in every detail, with the exception of eating and smoking his pipe.

The patient was very reticent about his past life and had misstated his age. He allowed it to be known, however, that he had previously been engaged in various lawsuits in which he had sued for damages. The subject upon which patient was freest in discussion was his disability and its symptoms.

Early involutinal changes in the nervous system might possibly be invoked to account in part for the general attitude of inertia; but the conspicuous objective of all the patient's thought processes makes it appear suitable to designate his case as one of "pension-neurosis."

CASE 8.—*Hysteria*.—(Symptoms referred to cerebellar lesion). This unusual case occurred in a youth who enlisted in October, 1915, at the age of 14 years and 10 months. Being well grown and appearing several years older, he had given his age as 18. Two older brothers were already serving at the front. The father was reported to have been alcoholic.

After a year's training in Canada, while on transport going to England he states that he had some sort of a "spell" and struck his head. Soon after arrival in England he began to complain of dizziness and faintness while on parade. In January, 1917, he complained of severe intermittent pains in the back of the head. He also vomited several times.

In February, 1917, he was admitted to hospital, remaining ten weeks. His medical history sheet states: "Trephined over cerebellar region left side, after having shown signs of cerebellar tumor. Condition very much relieved. *Very severe.*"

Patient was later admitted to the Granville Canadian Special Hospital, where in May, 1917, the neurologist in charge reported:

"Disability.—Pain in back of head and forgetfulness, following some, as far as history goes, indefinite cerebral disturbance which was diagnosed as cerebellar tumor, and for which he was operated upon and cerebellar decompression done February, 1917.

Present condition.—Has no sign at present of any organic lesion of the nervous system."

Eye grounds were negative; no nystagmus. no difficulty in walking; abdominal reflexes present; knee jerks present only on reinforcement; no Babinski.

On board ship returning to Canada in June, 1917, the medical officer recorded: "Violent pains in back of head; convulsive seizures somewhat Jacksonian in type on right side; periods of violence when he is dangerous to others about him."

The officer commanding the Hospital Ship noted: "He has caused a deal of trouble on the voyage and I am not convinced that his conduct is altogether due to a pathological condition. In any case, he will require careful observation."

After admission to Special Hospital in Canada, patient displayed a considerable variety of symptoms. There were intermittent periods of apparent stupor in which he was mute and

stared wide-eyed in one direction. For a few days he complained of extreme abdominal pains, associated with slight rise in temperature, which then passed off. His complaints had been such, however, that at first the advisability of operation was considered. The patient wanted much attention, and after reporting himself very ill would call for food; later, perhaps, announcing that he expected to die incontinently.

So far as the evidence goes it seems highly probable that the whole reaction has been hysterical from the first, complicated possibly by post-operative manifestations. The operation revealed no cause for the symptoms which, although in abeyance for a short time, recurred with as great severity as before it was done. The later access of abdominal pain probably associated with indigestion and gas formation, was the cause of equally aggravated complaints. The patient's whole reaction has been more or less juvenile and at times there has seemed to be no doubt of the voluntary assumption of symptoms, such as violent shaking and trembling and fixed stare. A grievance reaction also has not been lacking, the patient insisting on the rights of returned soldiers. When on parole and under observation he has some times begun to act in an erratic and apparently irresponsible manner, thus attracting attention and being brought in by escort.

About four months after return to Canada, he began settling down into a more orderly state and showed himself capable of fairly regular employment. He soon presented the picture of health in every respect.

CASE 9.—*Mythomania*.—This is a still more unusual case of a psychopathic personality showing traces of manic constitution and in which a fabrication tendency, also apparently constitutional, attained a gorgeous efflorescence during service.

This man enlisted in August, 1914, at the age of 24, and was found physically fit. He proceeded overseas with the first Canadian contingent.

The case can, perhaps, best be presented by submitting first some items from the patient's own account of his experiences, which were obtained from him in August, 1916, after which actual facts will be sub-joined for comparison.

Patient's Story.—Leaving school at the age of 14, he wandered about the world. He has

been a promoter, a card sharper, a race track tout, a wrestler and trainer, and other things, in short, a first class adventurer, never lacking money long. "I used my head to make money." Variable alcoholic habits since the age of 17, and several Neisser infections (the last one in France), the patient admits as matters of course. Lues denied. As to his previous health he asserts that he was "like a horse."

Continuing the narrative, invalid arrived in England in October, 1914, and in France February, 1915. He was sent at once to the front where he saw active service more than five months.

About the 15th June, he had "a touch of gas" owing to the fact that his "respirator leaked." This laid him up in the hospital five or six days and he was never as good a man afterwards. As he expresses it, his "nerves were all shot to hell," this condition being due "not to being scared but sheer weakness." He describes his many experiences as a despatch rider, occupying most of his time in France. He would talk to his motor cycle as if it were alive and then fall to crying "with rage and weakness." He admitted various personal encounters with the enemy and allowed the inference to be drawn that he had various German dead to his credit. At the same time he protested that he preferred not to discuss these matters as he was naturally averse to saying or doing anything which savoured of display.

Finally, on the 19th July, he was pursued on his motor cycle by several of the enemy. He was blown up by a shell explosion, and his machine wrecked. For two weeks he was unconscious, and after that his self control, already much affected, was entirely gone. "I was like a kid three years old; my body had over-fought my will." He declared that the explosion had partly buried him, that his left chest and arm were severely bruised, two ribs fractured, his right foot injured. Invalid states that he was taken to England 12 days after the casualty. He complained of weakness and numbness in his left arm every morning, and that the cords of the neck were swollen: had a stinging pain through the head and ears and tightening across the chest; twitching of the face and jerking of the extremities; in fact, "a big irritation all through the system."

He gives the date of his return to Canada as November, 1915. Not before the following May did he begin to feel return of self control.

When the patient furnished the above account he was still complaining of the nervousness resulting from his experiences in France. There was moderate pyorrhoëa alveolaris which he said was due to the gas attack. Physically, he was in good condition. There was some vaso-motor irritability and a tendency to perspire easily. Knee jerks were diminished. His general reaction was hypochondriacal and he reported numerous changeable paraesthesias.

The *actual data* of this patient's service overseas are as follows: He was admitted to No. 1 General Hospital Netheravon, January 6, 1915, complaining of pain over his heart and in his left arm and shoulder. The condition was diagnosed as rheumatoid arthritis. The patient had given a history of a fall while in camp in Canada the preceding August, bruising his left chest and shoulder; and stated that he had injured himself again in England while unloading a transport wagon. The history showed that he had been reporting sick with pains in different parts of the body at frequent intervals practically ever since enlistment, and that he had had considerable treatment with indifferent results.

At the time in February, 1915, when the patient declared that he went to the front, he was really being boarded in England for discharge and return to Canada as medically unfit; and on February 20 he made a signed declaration that it was his wish to return to Canada.

The findings of the medical board were duly approved and the patient arrived in Halifax, March 23, 1915, and was discharged at once from the service.

In February, 1916, he reported at the convalescent hospital in his home town and applied for treatment. His account at this time was considerably at variance with the one first quoted above. He stated that he had been in France but never in the trenches; and that while there he was suffering so much from pain in the left arm that within about a week of arrival he was returned to England.

Then followed a series of letters from the patient to Militia Headquarters describing his symptoms and asking for reinstatement on pay. "I was one of the first boys to return from the first contingent unfit for further service . . . I feel that I am entitled to some assistance from you as I have given my

best for my country's cause and should have some consideration."

He was put back on pay and kept under treatment from February to December, 1916. He still complained of weakness and pain in the left arm. A medical board in November, 1916, reported: "The pain is probably psychic as no organic cause could be found. A cervical rib was suspected but repeated x-ray tests are negative. He is of a nervous temperament but apparently otherwise in good health."

In December, 1916, he was again discharged from the service with a small pension running six months.

In this case we have an excellent example of that form of diction known as huntsman's Latin, which our patient had apparently found a convenient medium of intellectual exchange, and one well suited to his temperament. With his greatly exaggerated self-feel and self-sufficiency, his expressed sentiments of modesty were continually at odds, like the mock humility of the super-pious. An audience of uninitiated was his golden opportunity. He delighted in speaking at recruiting meetings and the prestige of the returned soldier who has been through it all, was dear to him. The war, he declared, had been a great education which he "wouldn't sell for ten thousand dollars." The pretense and artificiality in social life which he found at home on returning "from the front" filled him with aversion. It left him unsatisfied. It was the primitive savageness of army life that suited him. He felt the call of the trenches and would fain return.

The assurance and initiative required to turn the services of others to his own advantage were never lacking; they were even shamelessly conspicuous. When one day he found a dime on the floor, his instant instinctive exclamation was, "two beers."

Regarding the future he had no misgivings. He would "match his head against the other man's," and make his way. Singularly out of keeping seemed his somewhat pusillanimous complaints and solicitations before the authorities. Perhaps though the discrepancy was only apparent.

Stereotyped Symptoms.—There is a group of general symptoms common to practically all the war neuroses, so common, indeed, that if they were recorded together with a rubber stamp following the diagnosis of functional

neurosis there would be very few errors of description.

These stereotyped symptoms include a feeling of general weakness, disturbed sleep, headache and other pain reactions, dizziness or faintness, tremors often aggravated by observation, psychomotor irritability, complaint of dyspnoea and palpitation on exertion, vasomotor disturbances, difficulty in fixing attention and of sustained effort of any kind.

As neurosis cases improve it is rather striking that the symptoms last to disappear and which recur provokingly are those which being purely subjective in character cannot in any way be demonstrated. These are vague pain reactions, sense of weakness or malaise, dizziness, feeling of nervousness or restlessness, variable appetite, ringing in the ears, various paraesthesias, etc. Months or years after the patient has returned from overseas and when physical examination fails to reveal anything abnormal, symptoms such as these may still be complained of as a basis of occupational incapacity. Occasionally a persistent tachycardia is the only objective finding.

General Characteristics of War Neuroses.—Viewing these conditions en masse we note the following features;

(1) The preponderance of exogenic factors as compared with the neuroses of peace.

(2) The wide prevalence of neurotic reactions at least in mild or transitory form among soldiers at the front, though not necessarily incapacitating for duty.

(3) The distinctive reactive war coloring.

(4) The frequent incidence of phases of trench neurosis masking for a time or modifying the course of actual mental disease.

(5) The not uncommon association of neurotic symptoms with minor physical disabilities, giving to the latter an apparently aggravated character.

(6) The almost universal occurrence of stereotyped symptoms; the conditions and associations of warfare constituting a real neurosis school.

(7) The attitude of hospitality on the part of the invalid toward his neurosis or at least an air of resignation often suspiciously like satisfaction.

(8) The stubbornness with which these neurotic habit reactions may persist as a result of the unique fixation motives underlying them.

Predisposition to Nervous and Mental Disease.—In the presence of such large numbers of nervous and mental invalids returning from the war the question of predisposition forces itself upon us as a vital one. What is the past history of these invalids? Could any of these breakdowns have been averted? How would these men have fared in civil life?

With these questions in mind, records of 2500 men returned with some form of nervous disability were examined. It was at once apparent that there were two big groups; namely those *with* and those *without* significant data as to the previous history of the individual. From the very character of the usual military records it does not follow that the absence of a specific statement regarding the man's previous health means that his health has been good. Moreover, we know that in the field of nervous disorders especially, the man's off-hand statement that he has always previously been well (which too often is the only information available), cannot be accepted as evidence. In many cases lacking earlier personal data in which special enquiry has been possible, positive findings as to predisposition or even pre-existence of the disability have been forthcoming. It results that our figures may be considered as minimal estimates, and that they would be considerably higher if fuller data were available.

Among 2500 cases, the records show pre-enlistment causes in 30%. The following table shows the respective percentage of the several types of disability in which such pre-enlistment causes were found:

PRE-ENLISTMENT CAUSES AMONG 2500 NERVOUS AND MENTAL CASES.

Neurological	}	14%
Miscellaneous	}	
Neuroses		18%
Psychoses	}	51%
Defect States	}	
Epilepsy, etc.		83%
Alcoholism	}	
Drug habit	}	100%
Undesirables	}	

If there were the slightest question in the mind of anyone as to the need of a careful inspection of recruits from the viewpoint of their mental fitness, as well as physical, a perusal of these figures would supply the answer. It must be borne in mind that they refer essentially to earlier conditions in the Canadian service. There, as elsewhere, at the beginning of this war military fitness was practically

synonymous with physical fitness. To be sure some very general qualifications were indicated in instructions to medical officers; for example, that a man with epileptic history should not be accepted, and that recruits must be "sufficiently intelligent." Notwithstanding, in so far as any systematic attention to the mental state of the soldier was concerned, it may safely be said that mental unfitness as a cause of rejection was as good as unrecognized.

The two conspicuous classes in the above table are the psychosis and epilepsy groups. In 51% of the former and 83% of the latter the disease itself or definite predisposing factors demonstrably ante-dated enlistment. These two groups together accounted for about 950 of the 2500 cases; and of these 950, 480 had positive previous history (among the epileptics alone, 250 out of 300).

According to available figures the percentage of pre-enlistment causes is somewhat higher among nervous and mental disabilities than among physical. In a similar survey of 2000 invalids of all types the corresponding ratio was 25%.

It is obvious that war experience supports the diathesis factor in mental diseases, although the frequency of transitory psychotic episodes apparently reactive in nature might seem to point the other way. Of these conditions we can only say that, so far as our evidence goes, a given schizophrenic or cyclothymic constitution might never have broken down under the ordinary conditions of civil life; while under the stress of war such a constitution has been at a disadvantage and has given way to a mild or brief mental disturbance which the soldier of sounder stock might have escaped.

The Shell Shock Tradition.—This is one of the largest issues in connection with military medicine which has a non-medical and popular bearing as well. The diagnosis shell shock has been tremendously abused not only by making it include almost every nervous and mental condition arising at the front, even trifling or suspicious disabilities; but quite as much in its lay use both among the public at home and in the ranks of the army. Appendicitis was once the disease of the hour; later psychasthenia enjoyed this distinction; now it is shell shock.

Officially, the use of this diagnosis has been greatly restricted at the front. It should be still more limited among the home public. There is no reason to call a case shell shock

unless actual traumatic or physiological shock has been present. The resulting condition would then more properly be spoken of as a concussion syndrome.

With this diagnostic limitation we should probably rarely see in this country cases which could be described as shell shock, the concussion syndrome being, as a rule, a transitory one. Indeed with early and vigorous handling of all nervous conditions developing at the front, there should be fewer of the spectacular neuroses, such as hysterical paralysis, hysterical mutism and the like reaching these shores.

British, French and American authorities have taken the position that the great majority of war neuroses do not constitute discharge disabilities and are not conditions requiring prolonged treatment. In striking contrast with this view is the one too widely prevalent among the home public which accounts the war neurosis as one of the severer casualties dependent upon actual enduring injury of the central nervous system, and raises the disability to a plane of distinction.

While it is certainly true that in actual concussion and cases with general traumatism the central nervous tissue is likely to be involved, the changes which have been demonstrated are almost always transitory in character and can hardly be held responsible for neurotic habits which may succeed and persist for months or years. One of the most important aspects of the returned soldier problem for official consideration is the determining of a suitable public attitude toward war neuroses. With this type of case the tendency to hero worship is particularly likely to run rampant, is in effect most pernicious, and should be combated by every means possible. There should be no relaxation of military discipline so long as a case is under treatment. In so far as may be found necessary the public should be educated to keep hands off; and this applies with particular emphasis to benevolent women's committees.

Prophylaxis.—The most important means of preventing nervous breakdowns in the service is preventing obvious and probable candidates for such breakdowns from getting on the strength. This aspect of the question has, perhaps, been sufficiently emphasized. It is not anticipated that even the most thorough initial elimination of mentally unfit recruits would reduce to a negligible number the disabilities of

this type developing through stress of service. Nevertheless, it should very materially diminish the incidence of actual psychoses, cases of epilepsy and the mental disturbances associated with primary defect and the various character abnormalities. It should have even a considerable influence upon the frequency of occurrence of the war neuroses.

Another phase of the question has to do with the education and discipline of the troops in training. We are familiar with the harmful effects of mental contagion in the development of neurotic reactions. Prophylactic suggestion should work along the same lines, substituting in place of the popular tradition rational and salutary ideas as to the real nature of trench neurosis. A certain amount of advance knowledge of this kind skilfully disseminated among the ranks and backed up by a wholesome rigidity both in treatment and discipline will go far toward reducing the frequency and persistence of war neuroses.

Malingering.—This subject which has been left to the last, one hesitates to touch at all; and yet, avoid it as one may, it repeatedly thrusts itself forward. Chareot called hysteria "la grande simulatrice," and it is this particular characteristic which comes out most strikingly in neuroses among soldiers. Most authorities are on record as saying that malingering in the strict sense is very rare, but it must be remembered that the sense in which they understand it is very strict indeed. At the opposite extreme would, perhaps, be the viewpoint of many a philistine medical board, from which we should doubtless come to the conclusion that simulation in one form or another is very common indeed.

To set the matter right scientifically we may take the recognized standpoint that there are two situations. On the one hand, there is a conscious attempt to deceive others; this is malingering. On the other, the individual is the unconscious victim of self deception; this is auto-suggestion or neurosis. Such a distinction is probably scientifically justifiable. It is, moreover, morally admirable; but it is also practically difficult, and sometimes, one is tempted to add, pragmatically questionable. Furthermore, it must be realized that we are without methods of examination which will determine beyond peradventure that a given case is definitely and exclusively one thing and not the other, either straight malingering

or straight neurosis. We are more comfortable in compromising somewhat short of the scientific ideal; and in a great many cases common sense will be likely to suspect that it discerns a subtle admixture of both types of suggestion. The stage in which a case comes under observation may also be significant. It is not unknown that what may be at first a more or less voluntary assumption of an abnormal reaction may later, as a formed habit, become an actual factor of auto-suggestion. On the other hand, we are equally familiar with true mental disabilities of depressive type in which the patients themselves believe and even declare that they are guilty of simulation in the display of their symptoms.

In any case by turning suspects over for careful mental examination, giving them for the time being the benefit of the doubt but no immunity beyond that justified by reasonable doubt, and by an uncompromising application of the measures of treatment and discipline as in all neuroses, the problem of malingering may be expected to give rise to less and less difficulty.

Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

(Continued from page 597.)

REPORT OF A CASE OF PROLONGED INTUBATION.

EMIL MAYER, M.D., NEW YORK CITY.

A boy aged nine years had had diphtheria at the age of two, for which tracheotomy was done, resulting in a tracheal fistula, for which he was admitted to the hospital. Attempts to close this by plastic operation failed, with the result that a tracheotomy tube had to be inserted.

Stenosis of the larynx followed, which was treated by divulsion, with subsequent introduction of an intubation tube. This tube had to be removed under suspension and promptly reinserted at intervals for a period of five years, always under general anesthesia. Finally, in April, 1918, the intubation tube was removed. A tracheotomy tube was inserted for a couple

of days. This was removed, the wound closed, the patient breathing since through the natural passages. The writer concludes:

The special points of interest in this case are:

1. Persistent remaining of a tracheal fistula in spite of every faithful attempt at its closure.
2. A stenosis of the lower portion of the larynx, due to contraction of the natural parts, and their consequent disuse.
3. The impossibility of intubating except under general anesthesia and under suspension.
4. Persistent collapse of the larynx as soon as extubated.
5. The prolonged wearing for five years of an intubation tube.
6. The ability to breathe through the natural passages after all these years, in spite of the loss of at least two anterior rings of the trachea.

To this happy outcome must be attributed, in great extent, the growth of the patient, who, from a little boy of nine, and four feet in height, is now nearly fifteen years old, and has attained a height of five feet five inches, with natural increase in size of all his organs, including the trachea and larynx.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven: I should like to inquire as to the development of thyroid and cricoid cartilage, notwithstanding their disuse—do they grow in the normal way?

Answer: Yes.

DR. JOSEPH H. BRYAN, Washington: It must have taken long continued, patient work.

DR. THOMAS H. HALSTED, Syracuse: I hoped that Dr. Mayer would help me out on a case that is at present under my care. Three months ago I was called to see a child a year old which had had a mild laryngitis for several days. A general physician was in charge of the case. One night the dyspnea became worse, and I was called in. I found the child cyanosed and the dyspnea very great. Examination revealed nothing. I had the child sent to the hospital, and went there myself in my car, after telephoning for them to have the instruments ready for immediate intubation. The tube was put in immediately and a culture was made and found negative. Antitoxin was given on general principles. At the end of six days, I removed the tube, but had to put it

back immediately and make artificial respiration. We gave this child antitoxin during the first few days. The throat was examined repeatedly, but the culture was always negative. It has been three months now, and during this time I have extubated eight times and intubated nine times. I did a direct laryngoscopy a month ago, and found nothing but an ashy appearance of the trachea, resembling a pseudomembrane. I did not do a bronchoscopy. We suspected the existence of a foreign body, and the child has been x-rayed several times, always without result. The child is perfectly well otherwise, and has gained in weight. It walks about and enjoys itself, and has no difficulty in swallowing, but I do not know how to get rid of the tube. The grandmother wants me to say that she believes that it was all due to teething. I do not know. The child has had one very slowly erupting tooth, one of the molars. It has been exceedingly painful. It has taken that tooth, which looked as if it were ready to erupt when the thing happened, until now to come through, and in the meanwhile a number of other teeth have erupted.

DR. CHARLES W. RICHARDSON, Washington: The case of Dr. Mayer's is a very interesting one. In former days, when I did a great many intubations, I occasionally met with some prolonged retention of the tube, but I think that Dr. Mayer has the record for long retention of the tube, and I wish to congratulate him on surmounting his various difficulties, especially after the loss of part of the cartilage.

May I ask whether he does not think that there was some regeneration of the cartilage later on, which caused the box of the larynx to stiffen up so that its firmness made it possible for him eventually to take out the tube and dispense with it entirely? That seems to me to have occurred in this case.

Regarding Dr. Halsted's case: Some few years ago I reported a series of cases of laryngitis hypertrophica subglottica acuta, and I should judge from what he describes that it was a case absolutely of the same character. Such is the usual history of these cases, as he describes and as I have seen them. They are usually very intractable with regard to the removal of the tube. They have in the past given me more trouble than the fewer retained tubes in diphtheritic cases, as you would naturally expect on account of the fact that the primary trouble in these cases is subglottic in the cri-

coid region. Of course, when I took out the tube in these retained cases the stenosis immediately recurred or soon thereafter. It takes some time to get rid of the tube. I should not worry about it, but keep on in the same way he is now following. I have had cases last three or four months before eventually being able to dispense with the tube.

DR. HENRY L. SWAIN, New Haven: I presume that Dr. Halsted adopted the method of giving large doses of an anti-spasmodic before attempting to take the tube out. That is often successful. You can then remove it, when you would not be able to do so if the child was in possession of all his reflexes. I have had exactly the same kind of case as Dr. Halsted. In fact, there are three in the hospital now. One is just like this, and the others are retained tube cases. I have had trouble to get rid of them. I am sorry that I forgot Dr. Richardson's suggestion, and I think that this explains the situation perfectly. However, I did try to look upward in one of the cases. I was called in consultation and thought that it would be a good thing to do a tracheotomy and take the tube out. At the time of the operation and later, I tried to look in from below and see the condition of the larynx and find out what its interior contained, but without success. Some time after the tracheotomy this child had a sudden choking fit and died. We could not explain the matter, unless it was general uremia. The other children got well, but in these we had almost to stupefy the patient before we could get the tube out and have it stay out. In one case we had to keep the child under the narcotic for a whole twenty-four hours. These two children are all right now.

DR. EMIL MAYER, New York City, closing: Replying to Dr. Richardson's question, I would say that perhaps there was not so much reformation of cartilage, but that on account of the long-continued presence of the tube all the tissues about the trachea became as hard as whiplcords. So we had almost bony ridges on each side, which served to prevent the collapse that surely would have occurred from the falling in of the soft parts.

Regarding the case that the chairman presented, it does seem that an acute laryngotracheitis of some kind was the original cause requiring intubation. Dr. Lynah, in a masterly paper on "Prolonged Wearing of Intubation Tubes," recently called attention to the imme-

diate collapse that takes place in many instances when the tube has been removed, requiring a hasty reintubation. In fact, he tells of a case in a boy who was extubated and returned to the ward. The boy was under the impression that the tube was still *in situ*. He was kept in the hospital for some time, and every time he misbehaved they threatened to remove the tube, and he immediately behaved. The tube was not there, but he thought it was. I would suggest to Dr. Halsted to introduce a much larger intubation tube next time, and when he does extubate to have the patient under some opiate, so that the general reflexes would cease, watching over him for that time of immediate danger and the likelihood of having to do a tracheotomy.

Regarding the question of Dr. Swain, as to whether the patient did not receive quantities of antispasmodics, I would say that the boy was never extubated except under general anesthesia. He has been receiving an eighth of a grain of morphia, and then being completely anesthetized while the tube was removed for cleansing, and this latter had to be done in a hurry. He has been anesthetized over twenty-five times, and each time the anesthesia became more difficult because he was pretty well soaked with the drug. I hope that we shall not have to do any more for the little chap because he has been very brave. It certainly was to me a most interesting case, and one of the most important deductions that we can make is the wonderful tolerance of the larynx. The keeping of a tube in a larynx for a month's time seems to make no difference to him.

THE SURGERY OF LARYNGEAL MALIGNANCY.

HUBERT ARROWSMITH, M.D., BROOKLYN.

From the author's observations of MacKenty's work and his own recent experience, modeled very closely thereon, he is inclined tentatively to suggest the adoption of Moure's antecedent tracheotomy, to accustom the lower air passages to the direct impact of air, which may lessen their immediate postoperative irritability and susceptibility; the tracheal opening to be made high, as Jackson has indicated, because that will not interfere with the later mobilization of the trachea. Otherwise the two-step operation seems to offer no special advantage. This is the ideal field for the employment of oil-ether colonic anesthesia, as de-

vised by Gwathmey. It makes the whole procedure infinitely easier for both patient and operator. Even if really painless under local anesthesia, such an ordeal produces an enormous apprehension which cannot but be detrimental to the patient, and the degree of infiltration of the tissues necessary to produce insensitiveness must interfere with their repair. With rectal anesthesia laryngeal spasm does not occur, bleeding is very much less, there is no tracheo-bronchial irritation from the directly inspired anesthetic, which very largely obviates the necessity for subsequent repeated applications of the suction apparatus—in itself an agent of some danger—and there is much less likelihood of postoperative vomiting, most undesirable under these conditions.

The laryngologist for every possible reason is the man who should do laryngeal surgery, both external and internal. If he saw all these patients at an early date, thyrotomy would more often be performed.

Laryngeotomy cannot be repudiated on any such grounds as the mutilation, or the loss of voice. Laryngectomized patients are in no worse case than the blind, the deaf or the helplessly crippled. Many of them seem to get a fair amount of happiness out of the mere fact of existence, and are not by any means incapable of self-support. In judiciously chosen cases this operation offers a good deal more than a probability of clinical cure, and in most instances a definite retardation of the fatal ending.

Of two cases operated by the writer, one died six weeks later of pneumonia. The other is in good condition, now six months after operation, and at work.

A third case, in whom only a tracheotomy was done, his final sufferings were so great that the author regrets that he did not give the patient "a fighting chance by as far-reaching a dissection as possible," rather than witness such sufferings as this man endured during the last six months of his life.

DISCUSSION.

DR. JOHN E. MACKENTY, New York City: The main trouble is that the cases come to us too late for any hope of permanent cure. Of twenty-three cases seen by me since last September, seventeen were inoperable, except in the way of alleviation. Only one case of the twenty-three was incipient. Now, that is a ter-

rible commentary on the present condition of the diagnosis of this disease. There is a fault somewhere, and, as Dr. Arrowsmith says, I think it is largely with the general practitioner, who does not take notice of the early symptoms. Anyone of cancer age complaining of hoarseness which lasts for more than six weeks should be under observation. There is no question that the mortality has decreased during the last few years. Up to seven or eight years ago it was very high. At the present day, those taking this work up have a different experience, and find the operative mortality much lower. I think that care in the technic will reduce the operative mortality to a very small fraction.

Partial laryngeotomy is a seldom required operation. I have added no cases of this procedure to the former record. I have seen none requiring it. Besides, hemilaryngeotomy is more dangerous as an operative procedure than total laryngeotomy. I think that a lot depends on getting the cases over the surgical end of it, on the postoperative treatment, more than we realize; it is the neglect of the small details following operation that produces the mortality.

I am wedded to the one-stage operation, but I am not prejudiced, I hope, and see some reason now in the use of the high tracheotomy that does not in any way injure the trachea. I object to the other because it injures the trachea.

I have been impressed by Dr. Arrowsmith's exhibition of colonic anesthesia. Having seen it used in this type of operation, I am going to give it a thorough trial. I believe that in colonic anesthesia we have made an advance in this work, because it lessens the amount of hemorrhage and of blood getting into the trachea, which I consider very important in guarding the patient against pneumonia.

DR. CORNELIUS G. COAKLEY, New York City: It would seem to me that a one-stage operation is, in some cases, much to be preferred to a two-stage operation. If the growth is small, and you can afford to wait for the adjustment of the respiratory tract to the new method of breathing, all right; but if the case is likely to result in total laryngeotomy the one-stage operation is to be preferred.

DR. ROBERT CLYDE LYNCH, New Orleans: I have now six cases of intrinsic carcinoma of the larynx that I have operated on under suspension. Four of these patients are perfectly

well at the present time. In the remotest case, it has been four years since the time of operation; in the most recent, about eight months. So far, there has been no recurrence, but I want to be sure that you understand that it is not good advice to give you at this time to operate on cases of intrinsic carcinoma of the larynx by that means. I am afraid that some men might think that this is an operation of choice and do it, and thus do more harm than good. In the second place, it would seem to me that as we progress along the line of study of operation for carcinoma of the larynx, the operations are going to divide themselves into two types—the thyroidotomy and the laryngeotomy types. The cases requiring hemilaryngeotomy will, very likely, give much better results under total laryngeotomy. I have had seven cases with five cures and no immediate deaths, within ten days from the operation. The recurrence taking place within ten months is the shortest time. That is, the patients who got the least benefit from the laryngeotomy lived ten months, and in this particular case he was especially grateful for this added period to his life, in order to wind up his affairs so that he might leave them in shape for his family. Five of these patients are perfectly well up until the present time. Three of them are farmers who have been through three crops. That is, they have planted and harvested their crops three times, and their families have been provided for by that means. The others are clerks, and all are particularly happy and grateful. All can do without pad and pencil, in that they have been able to develop a type of speech that is understandable by their associates.

My procedure has always been by means of a preliminary tracheotomy, and at first low down, but now high up. I have not seen any cases in which the tumors have grown so large within two or three weeks following the tracheotomy as to make me feel that the tracheotomy itself had jeopardized the patient's welfare as far as his recovery was concerned. Giving always the ether vapor anesthesia, and giving the vapor through the tracheotomy tube has certainly facilitated every manipulation during the operative procedure. I now take away with the larynx the superficial thyroid muscles, the sternothyroid and sternohyoid, that group of muscles overlying the anterior face of the larynx.

I first started rectal feeding after the operation, but that has been supplanted by the use of the nasal tube or the introduction of the small catheter, just as one would do with a stomach tube, keeping the end of the catheter out of the stomach; that is important, in order to get away from the nausea or postfeeding vomiting. The tube should be inserted down to the neck, so that the esophagus may take care of the swallowing to the stomach.

The method of the care of the trachea, to me, has seemed very important. I part the trachea and larynx, and attempt to separate at one point the trachea from the esophagus, and then I put in a tape, so that I may hold the trachea up until it is bent in that fashion. When things are ready I cut the trachea from above down, and the only bleeding that occurs is from the mucous membrane of the trachea. Before the trachea is cut a heavy silk suture is put in and held by an assistant. This prevents any blood from going down into the trachea. The anesthesia is carried on through a very small tracheotomy tube, which lies in the opening, and is also under the care of the assistant, who steadies the trachea. He has nothing to do but be sure that nothing enters the trachea. I do not know whether that is what keeps us from pneumonia or not, but we had no postoperative disturbance, and the remarkable gain in weight and the comfort that these people enjoy after the removal of the mass make it well worth while. It does seem to me that laryngectomy is not nearly so bad a thing for the patient as one would gather from reading the older articles on these subjects.

DR. HARMON SMITH, New York City: The reader of the paper cited a report of a case made by me. Last week I saw the woman. Her voice has returned, and she has gained in weight, although that was not necessary, as she weighed two hundred pounds to begin with. I believe that it was of low-grade malignancy, of a papilloma carcinomatous variety.

DR. D. BRYSON DELAVAN, New York City: Yesterday morning I exhibited to a number of members of the society a patient who had been operated on by a friend of mine in New York City twenty-one years ago, two-thirds of the larynx being removed, and he is perfectly well today. That is one of the few cases followed and the end-results studied.

DR. HUBERT ARROWSMITH, Brooklyn, closing: The plea I make is one of the utmost impor-

ance. If we are going to reach conclusions we want to know what becomes of the patient. Perhaps we do not all realize that our distinguished honorary president, Dr. Solis Cohen, was the originator of this method of handling the stump of the trachea, an invaluable step in the after-treatment of laryngectomy, and I think he was the first to do a laryngectomy in America.

DR. J. SOLIS COHEN, Philadelphia: I was not the first to do a laryngectomy, but the first to report the case.

(To be continued.)

American Medical Biographies.

MANN, JAMES (1759-1832).*

THIS army surgeon, who served three years in the Revolution and another three years in the War of 1812, thirty years later, and wrote most interestingly of military medical problems, was born in Wrentham, Massachusetts, July 22, 1759. After graduating in arts from Harvard College in 1776, in the same class with Aaron Dexter, he became a pupil in medicine, as was the custom of the day, with Dr. Samuel Danforth, a leading practitioner of Boston, and at the age of twenty became a surgeon to Colonel Shepard's 4th Massachusetts Regiment, July 1, 1779. He was reported a prisoner of war in June, 1781, and was imprisoned on Long Island in July and August of that year. Because of failing health he resigned from the service April 14, 1782, and settled in practice in his native town, and this year Yale conferred on him her honorary A.M., and Brown did the same in 1783. We hear of him next, April 13, 1791, when the records of the Massachusetts Medical Society inform us that "a letter from Doctor James Mann of Wrentham on Diabetes was received and read." He joined that medical society in the year of its reorganization, 1803, and published in the second volume of its Medical Communications papers on "Observations on the Lymphatic Swelling of the Inferior Extremities of Puerperal Women" and "Observations upon Menorrhagia and Leucorrhœa and the Beneficent Employment of Blisters, Acetate of Lead, and the Submuriate of Mercury in

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

those Diseases." He gained the Boylston Prize, December 31, 1806, by a dissertation on Dysentery. During the rebellion in Western Massachusetts in 1786-87, that was called Shay's Rebellion, Dr. Mann was ordered to visit the militia camps and report to General William Shepard.

Previous to 1812 he practised in New York, and on the opening of war joined the United States Army as hospital surgeon and was afterwards head of the medical staff of General Dearborn's Army, which was stationed on the Canadian frontier in Northern New York. He was present at the battle of Plattsburgh, and had charge of the wounded on that memorable day. He was invited to lecture on the theory and practice of physic at the Fairfield Medical School, Herkimer County, New York, but was obliged to decline because of his army duties. Brown University gave him her honorary M.D. in 1815. After peace was declared Dr. Mann became post-surgeon (April, 1818), and assistant surgeon (May, 1821). His chief writing was published in Dedham, Mass., in 1816,—a book of 318 pages, entitled "Medical Sketches of the Campaigns of 1812, '13, '14, to which are added surgical cases, observations on military hospitals attached to a moving army, also an appendix with a dissertation on the dysentery of 1806 and the winter epidemic in Sharon and Rochester, Mass., of peripneumonia notha in 1815-16." This book gives a vivid picture of army life, of the medical questions that had to be solved, and of the surgeons with whom he came into touch, but unfortunately the book casts too little light on the personality of the writer.

After the war Dr. Mann was elected consulting physician to the Massachusetts General Hospital in Boston, in place of Dr. Danforth, but there is no record that he rendered any service in that capacity, and in 1821 he was made chairman of a committee of five of the Massachusetts Medical Society "to report on what measures could be adopted to secure a better education of those persons who undertake to compound, put up or sell medicines in conformity with the prescriptions of physicians." The committee reported to the council in October of that year, and the report was adopted. It was about this time that he did a successful amputation at the elbow joint, reporting it in the *Medical Repository*, New

York, 1822, xxii, 14-20 under the title, "Observations on Amputations at the Joints."

Dr. Mann became a member of the Society of the Cincinnati and of the American Academy of Arts and Sciences; he did not return to private practice but remained and died in the public service, being stationed at Governor's Island, New York Harbor, when the end came, November 7, 1832.

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WALTER L. BURRAGE, M.D.

Book Reviews.

A Textbook of Nervous Diseases. By ROBERT BING, Docent for Neurology at the University of Basel. Authorized translation by CHARLES L. ALLEN, M.D. New York: Rebman Company. 1916.

A textbook on nervous diseases by Dr. Bing is well deserving of attention, for his well known book on the topographical diagnosis of diseases of the brain and spinal cord has proved his skill as a teacher to present clearly and yet briefly a subject which is intricate and, as usually taught, confusing to students. In this book, as one would expect, the portions having to do with localization of lesions of the nervous system are clear and adequate though condensed. The grouping of the diseases has the advantage also of avoiding a good deal of repetition, as for example, in treating the subject of syphilis of the central nervous system, that of transverse lesions of the cord, and the disturbances of the endocrine glands. Tumor of the brain, even in a book on the plan of this one, deserves rather more space than the writer has given it.

The psychoneuroses are described adequately and clearly, though the newer classifications so much used of late as of anxiety neurosis, psychasthenia, and others, are not used, but the disturbances are included under the rather large group of forms of neurasthenia, though they are better differentiated from this disease and the name used for the type of fatigue neurosis.

Particularly because of the lucid and excellent treatment of the anatomical diagnosis of the various diseases of the nervous system we know of few books better adapted to the use of students when first approaching the study of these diseases.

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FRENCH SYSTEM FOR RETURN TO CIVILIAN LIFE OF CRIPPLED SOLDIERS.

THE Red Cross Institute for Crippled and Disabled Men has recently issued a most interesting pamphlet, written by John L. Todd, Major, Canadian Army Medical Corps, on the subject of the French system for Return to Civilian Life of Crippled and Discharged Soldiers. The French have struggled with this problem, and the pamphlet summarizes their conclusions as to the best way to handle the many difficulties incurred, and suggests that many of the French ideas may be used to advantage in Canada.

Definite principles have governed the creation and design of measures adopted by France in caring for her discharged soldiers and sailors. France, with her whole strength, is fighting a national war; for that reason, the detriments incurred by Frenchmen are to be distributed, as equally as possible, among the citizens who compose France.

To secure the equitable return to civilian life of ex-soldiers and ex-sailors who have suffered physical or mental detriment, as a result of their service, is a work of large dimensions. Like every other large undertaking, it can be accomplished best under the administrative control of a single central directing body, by numerous executive agencies, each closely connected with the field of its operations. The need for a central administrative body has been recognized, and partly met; it is probable that it will be completely met.

In the organization of the executive agencies, it is to be remembered that the rehabilitation of disabled men is, in great part, a temporary operation, and that permanent machinery should not be created for effecting it unless a permanent use for that machinery exists; therefore, existing institutions and public services are employed whenever possible in executing the various operations by which disabled men are cared for.

While it has been, and will be, necessary to profit by the operation of important works of private benevolence, laws are about to be made which will prevent the initiation of unsound measures by irresponsible organizations dependent for funds upon private subscriptions. Private benevolence, indeed, should find no place in providing the advantages which disabled men should receive as a right from their fellow-citizens.

The interest of the men has been the first consideration in the designing of the methods adopted for returning discharged soldiers and sailors to civilian life; all measures have been designed with the object of returning the men in the best and quickest manner to an independent position in civilian life.

The procedure by which the rehabilitation of disabled men is effected may be divided conveniently into five stages:

1. Active medical and surgical treatment.
2. Functional reëducation.
3. The provision of artificial appliances.
4. Professional reëducation (vocational training).
5. Establishment in civilian life.

This division is, in a sense, an artificial one; since treatment, functional and professional reëducation, and the provision of artificial appliances are complementary processes. They should all be carried out as early as possible in the

progress of a patient; they will often be performed simultaneously. Consequently, they can best be carried out either in a single institution, or in special institutions closely allied in space and organization.

Such an institution, or group of institutions, is called a "center of reëducation." Many centers have been established in France; those at Saint-Maurice and at Bordeaux have been organized as models. It is estimated that about 30 to 40 per cent. of the men composing the French army will be admitted to hospitals because of disease or wounds. Active medical and surgical treatment is given to soldiers by the French Medical Service, in a host of hospitals. In addition to general hospitals, institutions for special purposes, such as the treatment of skin diseases or for the repair of injuries to the teeth and jaws, have been established by the medical service when and where they have been required. Among the most important of the special hospitals are the orthopedic centers. These are equipped with the staff and appliances necessary for performing any secondary operations of a special nature which may be necessary, and for undertaking functional reëducation. At these hospitals, the stump of every patient who has suffered an amputation is radiographed on admission, to see whether an appliance is as yet advisable. If the stump is in condition to bear an appliance, it is fitted with one, and the functional reëducation is begun. Under the term of functional reëducation are found all of the means adopted to secure the existence of a maximum of its normal function to an injured part. This is done by means of various exercises, gymnastics, and by light work, such as the making of bags or the hemming of towels. Work has been found to be most useful in functional reëducation, as it creates a hopeful outlook for the wounded man, and gives an opportunity of observing the patient's aptitudes, and so facilitates the making of a choice of an occupation for him.

The responsibility for controlling the treatment received by a soldier or sailor rests with the medical service of the army or the navy, until the soldier or sailor concerned is discharged, which does not usually take place until their functional reëducation is complete, and until they have received any artificial appliances which they may require. It is possi-

ble that, in the future, regulations will make it necessary for men requiring it to accept not only medical and surgical treatment but also professional reëducation.

The responsibility of recommending the discharge of a man as medically unfit for service rests with carefully-instructed, competent, and perfectly equipped boards composed of medical officers belonging to and appointed by the French Army Medical Service. These boards have also the responsibility, both of deciding whether a disability results from service—and is therefore pensionable—and of deciding the degree of incapacity resulting from a pensionable disability. The pension awarded in respect of a disability varies directly with the degree of incapacity resulting from it.

It has been accepted as a principle, first, that each man requiring an artificial appliance is to receive the appliance, of the best possible type, best suited to his needs; and, secondly, that artificial appliances supplied by the government are to be maintained in repair and replaced, when necessary, by the government.

An orthopedic commission has been appointed for the purpose of establishing the types of artificial appliances to be provided by the government. It is possible that the maintenance of appliances will be provided for by paying an annual sum for their repair to those using them.

The choice of a future occupation for a disabled man is a matter of the greatest importance. It can be made, rightly, only by those who have a special competence in such matters, who are accustomed to estimate a man's aptitudes, and have a knowledge of existing or probable opportunities for occupation.

It has been accepted as a principle that the economic soundness of measures connected with the establishment of disabled men in civilian life must never be allowed to depend upon any feeling of beneficence toward them. The position of a disabled soldier must be an assured one and dependent in no way upon the goodwill or assistance of others.

One industry in which official foresight is placing many disabled men is the manufacture of orthopedic appliances. The existence in France of perhaps fifty thousand men who will wear, and will require repairs for, prosthetic appliances of various sorts gives an opportunity for the creation of an important new industry. An artificial limb must usually be renewed at

the end of a few years; in the meantime it requires repairs. That the manufacture of artificial limbs is a profitable industry is evident from the fact that they are sold, at the current prices—between 200 and 250 francs for an artificial arm—for about three times the cost of their production. Considerable numbers of men are being trained as manufacturing orthopedists at the centers of reëducation, and it is well that this is so, if France is to keep the supply of artificial limbs for her wounded in her own hands, because, already, German manufacturers of artificial limbs are sending out circulars touting for business in France!

The Government fully appreciates that France is, after all, an agricultural country, and it is doing everything possible to direct discharged soldiers to occupations connected with the cultivation of the soil. Soldiers who, after a course of reëducation, are ready to assume their chosen positions in civilian life will frequently require assistance in order that they may be established, ready for work, in their workshops or on their farms. The artisan will require tools, materials, and money to secure his subsistence until his business is established; similarly, the farmer will require help in purchasing live stock, tools, and seeds before he can begin the cultivation of his land. As a rule, those who have passed through a center of reëducation will not require so much assistance as those who have not done so. It is part of the policy of most centers to assist their pupils to earn and to save money, so that they may have a small capital when they leave. In addition, some schools give their graduates an outfit of tools. It has been proposed that a special bank should be created for the purpose of providing financial assistance for men who require it on reëntering civilian life.

There will inevitably be a comparatively small number of discharged soldiers who, although receiving pensions, will be incapable of looking after themselves entirely. It is the policy to allow men of this sort to be cared for, as much as possible, in the families of their relations or friends; their pension will be sufficient to bear the cost of their maintenance. Consequently, although institutional treatment may be necessary for some violent maniacs, etc.,—there will be no necessity for the establishment of old soldiers' homes. Indeed, it is anticipated, were such homes established, that there would be few men who would consent

to enter them. The vast majority of the present armies are men accustomed to home life; the soldiers for whom a past generation established "homes," like the "Invalides," were professional soldiers who had spent most of their lives in the barracks and had never had a home of their own.

The following are important matters connected with the establishment of ex-soldiers and ex-sailors in civilian life:

1. Provision of pensions.
2. Assistance to employment.
3. Advancement of capital.
4. Increased cost of insurance.
5. Settlement on the land.
6. Watching the interests of disabled men.

The old pension laws, which existed before the commencement of the war, have been found to be inadequate. It is certain that they will be replaced with new laws.

The principles which the laws, finally adopted, will observe are definite. A totally disabled man must receive a pension permitting him to support his family in decency. Only the extent of the incapacity resulting from an injury determines the grade of a pension; neither social rank, nor earning powers, nor any other factor but the extent of the incapacity is considered. In order to assist medical officers in estimating the extent of the incapacity resulting from a given disability, a guide, a disability table, has been prepared for their use; it has been found to be indispensable. A disability is pensionable only in the extent to which it is due to, or aggravated by, military service. While, in theory, a soldier has the right to refuse an operation involving the shedding of blood; in practice, an unreasonable refusal to submit to an operation which would result in the lessening of a disability is held to be sufficient reason for the reduction of the pension to the amount which would be awardable were the existing disability diminished by operation. Pensions granted in respect of a disability are the inalienable property of the grantee. They are paid quarterly and can be drawn upon, in advance, through the post offices.

Offices established by the Government will assist disabled men to find employment in every part of France. Laws have been framed providing that disabled men, other things being equal, should be given preference over other

applicants; for employment in Government service and in any enterprise governmental concessions or assistance.

In order to provide for the support of the families of men who, perhaps for a period of from one to two years, are receiving professional reëducation, the Government either continues to pay the separation allowance or pays the pension, whichever may be the greater. After reëducation has been completed, financial assistance for himself and his family will be required until the reëducated man can establish himself in his chosen trade.

It is recognized that accident insurance and life insurance, as a rule, must cost more for disabled men than for those who are sound. The principle has been recognized that, when the disability is due to military service, the increased cost of insurance would be borne, up to a certain amount, by the State. Up to the present, no procedure for relieving disabled men from the increased cost of life insurance has been made. A proposal to pay the increased cost of accident insurance from a fund contributed to by employers and by insurance companies will probably be adopted.

The desirability of settling disabled men on the land has been recognized and various laws have been proposed with the object of making it easy for them to acquire rural property.

It has been proposed in France that the Central Body, which administers matters connected with the return of ex-soldiers and ex-sailors to civilian life, shall exercise a general watch over ex-soldiers' and ex-sailors' interest. It has been recognized as most important that the general public should have a clear perception of the precise conditions in which ex-soldiers and ex-sailors will return to civil life, and no pains have been spared to spread information on this subject.

Another pamphlet, compiled in connection with the preceding one, is that on the Statistical Consideration of the Number of Men Crippled in War and Disabled in Industry, written by I. M. Rubinow. It is written to aid in the estimation of how many invalids are likely to be created by the war, and to help to make clear, out of the hazy data which now exists, the number of cripples whom we must provide for, after the war. Although it is not possible to make any exact estimate, by means of available statistics on the proportion of

battle losses caused by rifle and artillery fire in previous wars, and in this war, as learned from statistics concerning German wounded, and from estimates of the number of killed, wounded, and permanently disabled in the armies of the Central Powers and the Allies for the first two years of the war, conclusions well worth considering have been reached.

The pamphlet further estimates the number of persons disabled in industry, describes the Birmingham Enquiry, and gives statistics concerning the economic capacity of cripples.

MEDICAL NOTES.

MORE AID FOR HALIFAX.—The sum of \$250,000, representing the balance of \$1,000,000 contributed by the people of Massachusetts last winter for the relief of the victims of the Halifax explosion, will in all likelihood be devoted to combating tuberculosis and other forms of disease contracted by the sufferers. The relief work will be extended over a period of five years. This action was taken on the recommendation of Dr. Victor G. Heiser, director for the East of the Rockefeller Foundation, who was requested by Mr. Endicott, chairman of the Massachusetts-Halifax Relief Committee, to make an investigation. Already relief representing an outlay of \$650,000 has been expended by people of the State. Already dwellings to the number of several hundreds have been erected for the shelter of the homeless and eighteen hundred persons have been provided with furnishings for their homes. The care of the blind has been instituted and pensions for the physically disabled have been established. The improvements and readjustments in public health conditions are necessary and are being arranged for as quickly as possible. The annual expenditures of the program are apportioned as follows: Massachusetts-Halifax Relief Committee, \$50,000; Canadian Government Halifax Relief Commission, \$15,000; Province of Nova Scotia and the City of Halifax, at least \$10,000.

WAR NOTES.

ARMY AND NAVY MEDICAL CORPS.—Applicants for the Medical Corps of the Army should make application either to Capt. John

T. Bottomley, 165 Beacon Street, Boston, or to Capt. Philip Kilroy, 61 Chestnut Street, Springfield. The examiners have application blanks, and will communicate all details as to membership in the Corps. Applicants for the Medical Corps of the Navy should apply to Capt. John M. Edgar, Naval Aid Department, Little Building, 80 Boylston Street, Boston. Capt. Edgar has the application blanks, and will give full information as to the requirements and the physical examination.

PRaises WORK OF SURGEONS.—Dr. Warren Eastman, past assistant surgeon of the United States Navy, who was rescued from the torpedoed transport *Mt. Vernon*, gave an interesting narrative on his arrival in Lynn, of the wonderful work done by the surgeons in France on leg and arm surgery and surgery of the face. He said that there are 700 patients at the Val de Grace Hospital upon whom Dr. Morestin works, and is doing more than any one man for the mutilated soldier. The patience and time spent in saving legs and arms are remarkable.

RED CROSS NURSE TOTAL.—The American Red Cross has 30,000 nurses enrolled, of whom 16,000 are serving at the front, according to a report made public on November 3. About 9,000 nurses will be needed in the next few months, and if the war continues for another year about 50,000 more will be needed. The Red Cross is planning a system of enrolling in every city and state. The organization has spent approximately \$850,000 in equipping nurses for the front, while \$1,500,000 has been expended in equipping base hospitals.

APPOINTMENTS TO MEDICAL RESERVE CORPS.—The following New England appointments in the United States Medical Reserve Corps were announced:

Major: Dr. G. S. C. Badger, Boston, Mass.; Dr. Frederick H. Verhoeff, Brookline; Dr. Frank T. Fulton, Providence, R. I.

Captain: Dr. F. B. Clark, Newtonville; Dr. A. P. George, Haverhill; Dr. C. J. Huyck, West Brookfield; Dr. C. E. Street, Springfield; Dr. D. J. Ellison, Lowell; Dr. Joseph N. Boyer, Springfield; Dr. Bial F. Bradbury, Togus, Me.; Dr. Timothy F. Brassil, Cambridge; Dr. Arthur L. Brown, Winchester; Dr. William S. Buckley, Brighton; Dr. Ed-

ward A. Cunningham, Belmont; Dr. Frank E. Draper, Boston; Dr. Jay P. Graham, Springfield; Dr. Willis LeBaron Hale, North Attleboro; Dr. Walter A. Hosley, Springfield; Dr. Arthur E. Joslyn, Lynn; Dr. Ellis S. Le-lacheur, West Bridgewater; Dr. Donald F. McDonald, Taunton; Dr. David A. McNally, Biddeford, Me.; Dr. Roy H. Peck, Springfield; Dr. Henry B. Potter, Wakefield, R. I.; Dr. Robert A. Rice, Fitchburg; Dr. Bertram H. Caswell, Somerville; Dr. Daniel B. O'Brien, New Bedford; Dr. Charles A. Tetrault, South-bridge; Dr. L. H. Beals, Northampton; Dr. C. M. Deems, Springfield; Dr. G. M. Sheehan, Quincy; Dr. E. G. Sullivan, Springfield; Dr. S. F. Currans, Dorchester; Dr. F. E. Dow, Northampton; Dr. H. H. Germain, Boston; Dr. F. D. McAlister, Lawrence; Dr. S. S. Orr, Weston; Dr. C. Potte, Boston; Dr. D. Williams, Boston.

First Lieutenant: Dr. E. McC. Marr, West-field; Dr. A. W. Slate, Indian Orchard; Dr. John J. Condriek, Brockton; Dr. George H. Hicks, Fall River; Dr. William H. Hunt, Bridgewater; Dr. Herbert L. Mains, Danvers; Dr. Alfred W. Myrick, Randolph; Dr. Francis A. O'Reilly, Lawrence; Dr. Hervey B. Pitcher, Fitchburg; Dr. Frank B. Ruskinigis, Worcester; Dr. Atherton M. Ross, Farmington; Me.; Dr. Charles Shanks, New Bedford; Dr. Warren R. Sisson, Boston; Dr. Max Baff, Worcester; Dr. Ralph N. Brown, Malden; Dr. George A. Connor, Cambridge; Dr. George J. Connor, Haverhill; Dr. Harlan F. Curtis, East Longmeadow; Dr. Arthur A. Cushing, Brock-line; Dr. Arthur E. Darling, Lynn; Dr. Fred F. Dexter, Longmeadow; Dr. Ralph O. Dodge, Hyde Park; Dr. Joseph F. Fallon, Brookline; Dr. Philip J. Finnegan, Salem; Dr. Edward J. Fitzgibbon, Dorchester; Dr. Ralph E. Foss, Peabody; Dr. Henry C. Gerrard, Springfield; Dr. Antonio Crasso, Springfield; Dr. Paul J. D. Haley, Medford; Dr. Marcus P. Hamble-ton, Augusta, Me.; Dr. Dennis W. Hefferman, Holliston; Dr. Ernest L. Hill, Millis; Dr. Fred D. Jones, Springfield; Dr. Howard M. Kemp, Greenfield; Dr. John F. Krasnye, Low-cell; Dr. Joseph A. Levek, Lawrence; Dr. Claude A. Loftis, St. Albans, Vt.; Dr. Harry L. McDonald, Attleboro; Dr. Carl E. Meyer, Chicopee; Dr. Edward J. Monahan, Boston; Dr. Frederick P. Moore, East Norfolk; Dr. Frank A. Murphy, Taunton; Dr. John M. Murphy, Brockton; Dr. Joseph B. O'Neill,

Pawtucket; Dr. Vosilios K. Papavast, Providence, R. I.; Dr. Lewis W. Pease, Weymouth; Dr. Leonard H. Pote, Somerville; Dr. Raymond R. Root, Georgetown; Dr. Carleton A. Rowe, Milton; Dr. John M. Salles, New Bedford; Dr. Joseph C. Sullivan, Webster; Dr. Jan E. Tellier, Attleboro; Dr. Elton M. Varney, Peabody; Dr. Orion V. Wells,* Westfield; Dr. Luther O. Whitman, Amherst; Dr. F. R. Broderick, Worcester; Dr. W. E. Connelly, Dorchester; Dr. J. E. Grady, Leominster; Dr. W. W. Hennessy, Salem; Dr. C. H. Lawrence, Boston; Dr. E. Martin, Boston; Dr. C. A. Ordway, Everett; Dr. L. Phaneuf, Boston; Dr. W. H. Sherman, Graniteville; Dr. J. L. Sullivan, Roxbury; Dr. G. A. Wilkins, Revere; Dr. J. Aaronoff, New London, Ct.; Dr. G. H. Binney, Nahant; Dr. T. P. Capeles, Haverhill; Dr. J. P. Carroll, Woburn; Dr. N. M. Crofts, North Adams; Dr. A. R. Cunningham, Boston; Dr. T. A. Devan, Boston; Dr. G. H. Lowe, Jr., Arlington; Dr. E. MacIntyre, Brighton; Dr. A. W. Spaulding, Newton Highlands; Dr. J. J. Condriek, Brockton; Dr. R. Morgan, Westfield; Dr. G. E. Reynolds, Pittsfield; Dr. J. A. Ruel, Haverhill.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 2, 1918, the number of deaths reported was 319 against 238 last year, with a rate of 21.20 against 16.07 last year. There were 38 deaths under one year of age against 38 last year.

The number of cases of principal reportable diseases were: Diphtheria, 19; scarlet fever, 13; measles, 4; whooping cough, 23; typhoid fever, 1; tuberculosis, 49.

Included in the above were the following cases of non-residents: Diphtheria, 4; typhoid fever, 1; tuberculosis, 6.

Total deaths from these diseases were: Diphtheria, 2; whooping cough, 1; typhoid fever, 2; tuberculosis, 11.

Included in the above were the following non-residents: Typhoid fever, 1.

Influenza cases, 200; deaths, 99.

COLLEGE OF PHARMACY OPENS NEW BUILDING.—The new building of the Massachusetts College of Pharmacy on Longwood Avenue, was opened last September, but the formal dedication will not take place until later, after

* Dr. Wells died without receiving his commission.

the structure is completed. About 150 students were registered, including 50 women. The building is the gift of George Robert White of Boston.

MEETINGS OF THE RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL.—The recently published memorandum of papers presented by the Research Club of the Harvard Medical School since November, 1917, when a group of research men connected with the Medical School arranged to assemble regularly for the presentation and discussion of papers on scientific subjects, indicates the number of investigators who took advantage of this opportunity for discussion and critical review of their investigations. Announcements of the meetings were sent to members of the various laboratories of pure science in Harvard University and neighboring institutions. The meetings were well attended and papers on a wide variety of subjects were read and discussed. The success of the Club during the past season makes it seem likely that these meetings will become an established custom at the University.

PROGRESS OF THE SPANISH INFLUENZA EPIDEMIC.

The Spanish influenza epidemic is on the wane in New England and surroundings. Eleven deaths from influenza and four from pneumonia were reported by the Boston Health Department on November 1, the lowest since September 14. During the week there were reported 130 deaths caused by the epidemic in Boston. Since September 8, there were 4,320 deaths in Boston due to the epidemic. Dr. Wm. C. Woodward, the Health Commissioner, is of the opinion that cases of influenza will continue to show themselves until spring, and reiterates that the public should not fail to exert the utmost precautions to avoid spreading the disease. While there is a periodic slight increase in the number of cases reported, the average decline in mortalities is favorable to a minimum low-ebb which the Board of Health hopes for in the near future. The reports from various parts of the State are as follows:

Fall River, 22; New Bedford, 58 cases and 7 deaths; Plymouth, 10 cases; Taunton, 13; Brockton, 13 cases and 1 death; Cambridge, 13 cases; Franklin, 21; Everett, 11; Haverhill, 25; Lynn, 16; Salem, 14; Lowell, 15; Somerville, 10; Woburn, 12; Worcester, 25; Fitchburg, 24 cases and 5 deaths; Chicopee, 11 cases; Deerfield, 13; Holyoke, 89 (two days); Northampton, 29 cases and 1 death; Springfield, 128 cases and 10 deaths; West-

Springfield, 128 cases and 10 deaths; Westfield, 12 cases; North Adams, 87; Pittsfield, 5.

In New York City there is a steady decrease in the epidemic. On November 2 there were 2,951 cases as against 2,398 of a few days previous; but November 4 shows only 1,567 new cases. The authorities are of the opinion that the epidemic is practically over in New York.

In Paris, during the week ending October 30, there were 1,263 deaths from influenza, compared with 880 deaths of the previous week.

While influenza cases show a decline in the U. S. Army, there was an outbreak of influenza at Camp Las Casas, Porto Rico. Reports received by the Surgeon General on October 30 showed a total of 3,015 new cases from the total reports, including 562 cases from Camp Las Casas.

A unit of eleven nurses left Boston for Harrisburg, Pa., to assist in fighting the epidemic there. The party consisted of seven nurses and four aids, and went under the supervision of Mrs. Anna M. Staehler, secretary of the Massachusetts Health Industry Commission.

There has been a general decrease in the epidemic throughout Massachusetts, with a few exceptions. Springfield seems to be one of these exceptions. Dr. Brooks has been authorized to establish a hospital there to aid the authorities in combating the disease. The State Guard unit will erect the open-air hospital on the Springfield Hospital grounds. The influenza reports for the last few days show 391 new cases and 15 deaths. The Board of Health has decided to put a quarantine on all influenza patients.

In the Army cantonments both influenza and pneumonia showed a sharp increase up to date. October 27 showed a sharp increase in the influenza cases when the record jumped to 2,486 from the low record of 1,602 cases. October 28 showed a further increase to 2,831 cases.

Mansfield has nine new cases, but schools are again open.

Worcester reports a decline in the number of cases. The number of new cases reported during the week was 84 against 160 the week before.

The base hospital at Lawrence has had no new admissions. The number of new cases reported on October 28 was 29 and four deaths.

Forty Boston nurses have gone to Springfield to help combat the disease there. They are under the direction of Lieutenant Colonel W. A. Brooks of the State Guard Medical Corps. On October 29 the Board of Health reported 85 new cases and six deaths from influenza.

Boston burial permits numbered only 21 on October 29.

Forty-five thousand railroad workers in Prussia and Hesse are incapacitated with in-

fluenza, and passenger traffic is much restricted in consequence.

Bacterial investigation shows that the present outbreak of influenza does not differ from other epidemics of the same malady, the high mortality rate being due to secondary infection, according to a statement made by William H. Fisher in the House of Commons. He added that he saw no reason to believe that the spread of the disease was due to malnutrition of the people. A conference of medical authorities and bacteriological experts was held and research ordered of the causes and nature of the disease.

Reports from cities and towns throughout Massachusetts indicate that the disease is on the decrease. Quincy, which was one of the hardest hit places in the State, was said to be virtually free from the epidemic. Cambridge schools have reopened. Eleven new cases have been reported among the 205,000 enlisted men in the fourteen naval training stations and schools of the First Naval District, but no death has occurred for several days.

Both the Army and Navy are now almost free from influenza. The Free Hospital for Women in Brookline, which for several weeks has been devoted exclusively to the treatment of influenza cases, has reopened its out-patient department. The main hospital was opened on October 28 to receive surgical patients. Between September 8 and October 15 110 cases of influenza were treated at the Franklin Square House. All cases were in charge of Dr. Hilbert F. Day.

New York's average death rate for four weeks preceding the outbreak of the epidemic was 10 per thousand. In the first week of the epidemic it rose to 12, and in the fourth week was 50. The comparative rate during the fourth week in Philadelphia was 158 and in Baltimore 148, while in no large city was it below 70. Public Health Commissioner Cope-land urged the public to be vaccinated. Twentyland predicted another epidemic in the spring five soda fountains were closed in the greater city because of unsanitary conditions.

San Francisco reports a total of 2,007 influenza cases and 96 deaths on October 25.

Further subsidence of the epidemic throughout the nation, however, was indicated in reports from 44 states. Over the South and East generally improvement is shown, but the disease is still active in most of the large cities. Continued abatement of the epidemic in army camps was reported. There were reported 2,772 new cases in the army, making a decrease of one from the report of the day before. Pneumonia cases decreased from 742 to 699 and deaths were 307 against 377 the day before. The total influenza cases reported now is 296,275 and pneumonia cases, 48,328, and deaths, 16,174.

Miscellany.**RESOLUTIONS ON THE DEATH OF DR. HOLMES.**

The following resolutions have been adopted by the Senior Staff of the Boston City Hospital:—

Edgar Miller Holmes was born in Middletown, Connecticut, the son of Giles D. and Emma R. (Miller) Holmes, on May 25, 1868. He met his death by drowning in front of his summer home, at Point Allerton, Boston Harbor, on September 19, 1918.

Dr. Holmes began his professional life as a dentist. After five years he decided that this work was not what he most desired, and entered the Harvard Medical School, from which he graduated in 1895. He was ophthalmological and aural house officer at the Boston City Hospital from January, 1894, to January, 1895; assistant to the aural surgeon, June, 1896; aural surgeon, May, 1899; visiting surgeon for diseases of the ear and throat, April, 1912; member of Administration Board, April, 1917. He was also aural surgeon to St. Elizabeth's Hospital; consulting aurist to the Forsyth Dental Infirmary; instructor in the Graduate School of Medicine, Harvard University; instructor in otology, Tufts Medical School, and for eighteen years aural surgeon to the Boston Dispensary. He was a member of the American Otological, Pharyngological, and Rhinological Society; New England Otological and Pharyngological Society, American Academy of Ophthalmology and Pharyngology, American Medical Association, Massachusetts Medical Society, and American College of Surgeons. He belonged to the Unitarian Club and the Harvard Club of Boston.

Dr. Holmes was married twice; in 1895 to Pauline E. Prentice, of Grafton, who was the mother of his three children, Marjorie, Pauline and Edgar, Junior. After her death he married, in 1907, Lottie A. Crowell.

Dr. Holmes was an indefatigable worker and was intensely interested in his specialty. He devised and invented several valuable instruments, and wrote many monographs. He was an intrepid operator, a clear teacher; could sketch easily and used water colors well. He was kindly and encouraging both to his patients and to the younger members of the profession, and was as conscientious in his hospital work as in his own office. One of the many friends who knew him well writes: "His home life was ideal. He had the ability to leave his cares when he left his office. He could play as well as he could work. His Allerton home showed this—with his fruitful war garden, its many varieties of flowers, its walks and its sea wall, all the work of his own hands."

The Visiting Staff takes this opportunity of placing on record its appreciation of the work

of a colleague, who was associated with the Boston City Hospital in one or another capacity for almost twenty-five years; and of expressing individually the sorrow caused by the death of a comrade, cut off so tragically in the midst of a successful career.

September 24, 1918.

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**VOLUNTEER MEDICAL SERVICE CORPS.
COUNCIL OF NATIONAL DEFENSE.
WASHINGTON.**

The Council of National Defense authorizes the following statement:

How the civilian physicians of the country have been readily responding to the call of the United States Public Health Service for medical aid in the districts most affected by the epidemic of influenza is reflected in two letters, written a week apart to the president of the Central Governing Board of the Volunteer Medical Service Corps of the Council of National Defense. On September 27 Surgeon General Rupert Blue of the United States Public Health Service requested the coöperation of the Volunteer Medical Service Corps in the following letter:

September 27, 1918.

The President,
Central Governing Board,
Volunteer Medical Service Corps,
Council of National Defense,
Washington, D. C.

Sir:—

In view of the present epidemic of influenza which if it spreads at the same rate as heretofore, will practically cripple the industries of the country, I have the honor to request that steps be taken to mobilize fifty units of the Volunteer Medical Service Corps, each consisting of ten physicians, for emergency service in connection with the prevention of, and relief from, this disease. Such units, upon mobilization, will be directed to report to officers of the Public Health Service placed in charge of this work.

For the present, the salaries and traveling expenses of these physicians will be borne by the American Red Cross. The salary in each case will be \$200 per month in addition to the reimbursement of their traveling expenses and maintenance.

Anything that your Board may do in this present emergency to mobilize and place at the disposal of the Public Health Service and the American Red Cross such medical units will be deeply appreciated and will serve to demonstrate the value of the recently created Volunteer Medical Service Corps.

Respectfully,

(Signed) RUPERT BLUE,

Surgeon-General.

The names of the five hundred doctors asked for were furnished within seventy-two hours. Three days after the first call, another request for five hundred doctors was received from the Public Health Service, and on October 1 the names of 1,135 physicians had been furnished, from whom more than the necessary number

were obtained. On every day since, additional names of volunteers have been coming in, and they have been sent to Surgeon General Blue for his reserve list.

The officers of the Public Health Service expressed gratification at the prompt response from the Washington headquarters of the Volunteer Medical Service Corps, and also for the replies which were being received from doctors in many parts of the country, and on October 4 Surgeon General Blue sent the following letter of appreciation:

October 4, 1918.

The President,

Central Governing Board,

Volunteer Medical Service Corps,
Washington, D.C.

Sir:—

I take pleasure in informing you that the officer in charge of the measures for combating the present epidemic of influenza in New England has stated by telegram that the number of doctors who have already reported for duty is sufficient to meet the needs of the situation in those states.

As you know, these doctors were obtained through the cooperation of your office and it is most gratifying to certify in this way to the prompt response given by your office to our requests for medical assistance. This is an instance which serves to demonstrate the value of the organization of the Volunteer Medical Service Corps in a national emergency like the present.

Respectfully,

(Signed) RUPERT BLUE,
Surgeon General.

Surgeon General Blue also wired on that day to all State Health Officers as follows:

Public Health Service will mobilize with aid Volunteer Medical Service Corps, all outside medical aid required in combating present influenza epidemic. Red Cross, upon specific request from this service, will mobilize nursing personnel and furnish necessary emergency hospital supplies which cannot be obtained otherwise. Inform all city and county health officers your State that all appeals for aid must be made to State health department which will make request for Surgeon-General, Public Health Service, whenever local needs require. Whenever necessary, Public Health Service will establish district officers to cooperate with State officials and distribute medical and nursing personnel.

Officials at the headquarters of the Volunteer Medical Service Corps are gratified that the organization was able to meet the emergency in this way, fulfilling the purpose for which it was created, namely, to place on record and classify information as to civilian physicians, so that a request for aid voiced by a government department could readily be supplied.

RECENT DEATHS.

DR. A. J. MAKAY, who was in charge of the fight against smallpox here eleven years ago, is dead of acute indigestion. He died at Salem on October 30, 1918. He was born in 1873, graduated from Tufts Medical College and the College of Physicians and Surgeons, Baltimore.

CARL BIBB HUDSON, M.D., Lieutenant, Medical Corps, U. S. A., died in France of pneumonia, October 2, 1918, aged 30. Dr. Hudson was a graduate of Harvard College (1912) and of Harvard Medical School (1916) and was resident surgeon of the East Boston Relief Station. He is survived by his widow, who was Miss Laura Wheeler of Newtonville.

FRED SCATES TOWLE, M.D., a Fellow of the Massachusetts Medical Society, Captain in the Medical Corps, U.S.A., lost his life in a fire which destroyed the officers' quarters at Base Hospital No. 3, Colonia, N. J., October 9, 1918, aged 54 years. Dr. Towle was a graduate of the Medical Department of George Washington University, Washington, D. C., in 1893, was a resident of Portsmouth, and President of the New Hampshire Medical Society, 1917-1918.

FRANCIS AUGUSTUS LANE, M.D., a Fellow of the Massachusetts Medical Society, died at his home in East Lynn of pneumonia, October 29, 1918, aged 51 years. He was born in Peabody. After graduating at Harvard Medical School in 1892, he was quarantine officer and port physician at Boston. He is survived by his widow and two children.

DR. GARDNER H. OSGOOD, roentgenologist of the Massachusetts Homeopathic Hospital, died at the Evans Memorial of the Massachusetts Homeopathic Hospital from pneumonia following the influenza. He was born in Boston in 1878 and was graduated from the Boston University Medical School in 1909. He had spent his entire time since graduation from the Medical School in the study of x-ray therapy. He was connected with the Massachusetts Homeopathic Hospital for eighteen years, becoming director of the x-ray laboratory in 1909. He was a member of the Medical Advisory Board No. 41-b, and was daily awaiting his commission in the Naval service.

JAMES JACKSON PUTNAM, M.D., died in Boston on November 4, 1918, at the age of 72 years.

The Massachusetts Medical Society.

NOTICE TO DISTRICT SOCIETIES OF THE MASSACHUSETTS MEDICAL SOCIETY.

The Public Health Committee of the Massachusetts Medical Society, with a view to increasing the benefits to be derived from membership in the Society and helping the busy practitioner to keep in touch with current matters of practical interest to the profession and pertaining to their daily work, has obtained the consent of the following named gentlemen to speak at meetings of District Societies during the year, in so far as requests may be made and other engagements permit arrangements for designated dates: Prof. William T. Sedgwick, Dr. Walter E. Fernald, Dr. C. Morton Smith, Dr. John Bapst Blake, Dr. Edwin H. Place, Dr. Victor Safford, Dr. William C. Woodward, Dr. Timothy Leary, Dr. Jose P. Bill, Dr. George H. Wright, and possibly a representative of the Rockefeller Institute of New York.

The object of these talks is the promotion of public health and increase of knowledge of practical details of daily interest in life of physicians in general practice.

In furtherance of the purpose which the Committee had in view, these gentlemen have offered their services without expense to the members of the Society and are willing to give occasional talks of about thirty or forty minutes, leaving ample time for discussion and questions.

Secretaries of District Societies desiring to arrange speakers from this list should communicate with the Secretary of the Committee, Dr. Annie Lee Hamilton, 141 Newbury Street, Boston, Mass.

The Boston Medical and Surgical Journal

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Address.

AN ORATION ON THE ART OF MEDICINE DELIVERED AT THE PUBLIC CELEBRATION OF COMMENCEMENT AT HARVARD COLLEGE IN JULY, 1783.

BY EPHRAIM ELIOT

when he received the degree of Master of Arts. There had been no public Commencement at Cambridge since the year 1773 or '4, on account of the war with Great Britain, till the year 1783.

WHEN we reflect on the virtuous care of our pious ancestors, who so early laid the foundation of a society which first enrolled America in the list of literary fame, a pleasing satisfaction fills each liberal breast. Banished from their native home by the tyrannical hands of ignorance and bigotry, the first settlers of New England justly thought the surest means to preserve their dear bought liberty to posterity, was to diffuse the liberal arts, through every rank of a growing commonwealth. Hail! happy seat of Science whose existence can be traced to such an original.

Besides a laudable ambition, the public celebration of commencement tends naturally to excite, each one has here an opportunity to expatiate on the different branches of science most agreeable to his taste. An attachment to the profession I have made my particular

study, causes chagrin that at this anniversary has long lain neglected the salutiferous art of medicine. If antiquity gives dignity to a profession, surely this, whose origin can be traced to the earliest records, may justly claim a large proportion.

Searce had mankind left the sweet abode of Paradise when fraternal discord, which caused the first bloodshed which ever stained the annals of humanity, taught to what evils their race was incident, from which in their former situation they had been entirely exempt. As population encreased, the feuds and contentions of a ferocious multitude governed by no laws but their barbarous will, rapidly encreased the evils of an afflicted world. Regular laws were not yet formed. Each one as is natural to mankind, strove for superiority and excited contentions which frequently ended in blood. To render their misfortunes more severe the lenient aid of surgery could not then be called for; but even the savage minds which had caused, could not behold the distress they had brought on unfortunate sufferers without experiencing the soft emotions of pity. The tender feelings thus gave rise to an art, whose benefits have ever been acknowledged, nor has any rational person in after ages ever ventured to call it in question. Happily, though, in this

infancy of arts, diseases from internal causes were few and simple. The numerous train that now depopulate the world, being chiefly the products of luxury, were then unknown. Yet, simple as was the art, mankind could not conceive it to originate but from the immediate hand of heaven. It gave relief, they paid acknowledgments and testified their sincerity by rearing temples in honor of its greatest proficients. For ages was Esculapins publicly worshipped. Hypocrates received almost equal honors to those of divinity. Celsus and Galen were high in esteem. The upright man, the true physician, by every nation, in every age, has justly been revered. By slow degrees, though cultivated with assiduity, has this salutary art approached perfection. For want of a true physiology, few real improvements could be made in the theory and practice of physic. Till the notable discovery of the circulation of the blood, in the beginning of the seventeenth century, spread the basis of a true theory and laid the foundation on which the noble structure of rational practice has since been raised. Thine ingenuity, immortal Harvey, has placed Great Britain, thy native soil, at the pinnacle of literary glory. The true causes and their symptoms were now unfolded, hitherto attributed to the wild ravages of unnatural ferments and an enraged Archæus. The greatest improvements have since been made more especially in the treatment of putrid and inflammatory disorders. For a more particular instance I will mention Small Pox which is a mixture of both; now encountered by the most timorous mind without anxiety, which formerly has spread consternation and swept off its millions and left whole countries desolate. A vast deal yet remains to be done. For America may be reserved to put a finishing hand and to bring to perfection what every nation has hitherto exerted itself to raise to its present state.

The means which in Europe have most liberally worked to perfectionate this benevolent faculty have been the peculiar attention paid to render medical education, complete and regular. The universities have been most generously endowed, societies have been established for the promotion of medical knowledge, in particular, which will ever redound to the honour of European governments. The noble foundations of numerous hospitals for the reception

of the poor sick and wounded, at the same time they practically exhibit the godlike virtues of humanity and benevolence, afford the finest opportunity for finishing a course of medical studies. It has been too much the case, here and perhaps all over the world, for a person merely to attend the practice of a physician for the space of four or five months, read a dozen volumes, and set out as an accomplished practitioner. But did such men consider the importance of the profession, did they reflect how much it regards the future health; how nearly it regards the lives of their patients, they surely would rather keep to the plough than engage in the practice they are so little fitted for. It does not lay in my power, and if it did, it would be presumption before so many competent judges, to prescribe a plan for an initiation into this profession, but it must be evident to every one, that a person ought to acquaint himself with the history of diseases; in order to which he must particularly attend to the sister branches of anatomy and physiology; before he can administer with safety to the relief of any disorder, he must have an adequate knowledge of *Materia Medica* and Chemistry. It is equally necessary that he should have studied the laws of economy in the physiological world.

The honest physician will desire to refer to the observation of distant ages, and to examine the opinions of authors of distant nations; he will, therefore, acquaint himself with the Greek, Latin and French languages. These last, though not absolutely necessary, are yet highly conducive to the accomplishment of a professor of this noble art.

But what shall we say of the man? Rather let us turn with disgust from the wretch, who, conscious of his ignorance without education, his only recommendation, his consummate impudence, vagrantly (?) pretends by the power of charms and boasted specifics to drive away diseases which have baffled the skill of the most experienced physician, availing himself of the weakness of his employers, he robs them of their gold and laughs at their calamities. Alas! we weep over poor human nature, when we reflect that there are men so destitute of the first principles of virtue, as thus wantonly to sport with the lives of their suffering fellow creatures.

But a more pleasing prospect opens to view.

and seems to promise better things in this part of the western hemisphere. Even in the midst of war we have seen to rise an academy for the improvement for the arts of peace, over which presides the virtuous patriot,* the vigilant senator, the generous benefactor of this his parent university in whose lists are enrolled the names of men, honours of literature both in America and Europe. Succeeding generations will surely venerate a government which has thus strenuously exerted itself for the advancement of useful learning. Besides the academy already mentioned, with pleasure have we seen the incorporation of another society upon a like liberal plan, which puts the art of medicine on the same footing here, it has many years held all over Europe, which from the judicious choice of its members and its excellent constitution bids fair to vie with any establishment of the kind in any part of the world.

While reciting the noble encouragement given to literature in this part of America, permit me in a particular manner to pay my warmest congratulations to this university on the late foundation of professorships in the most essential branches of medical science. An anticipation of the future advantages of which institutions, must excite joy in every liberal mind. Filled with the pleasing idea, we eagerly look forward to the time, when the University of Harvard shall be ranked with that of Edinburgh, now the seat of medical sages; when her sons shall be registered in the same catalogue with a Whytt, a Munro & a Cutter. We join our prayers, firmly trusting that this shall be e'er long the case. Science in general we hope will now abound as war has ceased, and our brethren are leaving the hostile field, again to cultivate the arts of peace. Harvard, whose generous walls at the commencement of the contest received and sheltered the virtuous band, now hails them with welcome, and invites them to participate with her, the glory of raising America to the summit of literary as they have of military honor. That they may largely reap the fruits of the patriotic bravery which placed the independence of America on a firm basis must be the wish of every honest mind. May peace be spread throughout the world, and "Health, without whose cheerful active energy, no rapture swells the breast," be universally diffused through every land.

* Hon James Bowdoin, first president of the American Academy of Arts and Sciences.

"Daughter of Paeon, queen of every joy
 "Hygiea! whose indulgent smile sustains
 "The various race luxuriant nature pours
 "And on the immortal essences bestows
 "Immortal youth. Auspicious condescend
 "Thou cheerful guardian of the rolling year
 "When through the blue serenity of heaven
 "Thy power approaches, all the wasteful host
 "Of pain & sickness, squalled and deformed
 "Confounded sink into the loathsome gloom,
 "Thy salutary power averts their rage
 "Averts the general bane, and but for thee
 "Nature would sicken, nature soon would die.
Armstrong's Art of Health.

[Memo.—The Medical society and the Medical Professorship had been lately instituted at Cambridge.]

Original Articles.

DELAY IN THE SURGICAL TREATMENT OF CANCER.*

BY CHANNING C. SIMMONS, M.D., BOSTON.

THE following paper was suggested by the report of the committee appointed by the Pennsylvania Medical Society to study the cancer problem. This committee attempted to determine why so many cases of malignant disease were inoperable when first seen by a surgeon. They analysed 400 cases of cancer treated by practitioners throughout the state of Pennsylvania and found that on the average in cases of "visible cancer" the patient delayed 14 months before consulting a physician, and the physician kept the case under observation 12 months before advising operation. In "invisible cancer" the physicians delayed 13 months before advising operation.

The present paper is based on 282 cases of cancer of the breast and uterus; 217 of these cases were observed at the Collis P. Huntington hospital between July 1, 1912, and December 31, 1915. The other 65 applied for treatment at the Massachusetts General Hospital in the year 1917. These two types of cancer were chosen for study, as they represent definite types of tumors with characteristic symptoms, and the possibility of malignant disease arising in these organs is well known to the laity and to all general practitioners.

The average delay in the 282 cases from the appearance of the first symptom to the consultation of a physician was 9.9 months (data on 240 cases). This is a distinctly shorter time than was found to be the case in Pennsylvania. Patients with cancer of the uterus sought

* Read before the Boston Surgical Society, Incorporated, at its twenty-second stated meeting, held at the Harvard Club, Boston, February 4, 1915.

treatment sooner after the appearance of symptoms than those with cancer of the breast: the figures being 5.6 and 12.5 months respectively. On the other hand, 33.3% of the former were deemed inoperable when first seen and only 12% of the latter. It has been impossible to determine the reason for this delay in seeking medical advice with any accuracy. A few definitely said they had not sought treatment as there was no pain. Others stated that they dreaded operation. Still others evidently realized that they had cancer and, believing the disease incurable, dreaded to be told the truth.

The average delay from the first consultation with a physician to the time operation was advised was 2.9 months (data on 209 cases). In the greater number of cases operation was advised at the first consultation, but a few cases that were kept under observation for a long time bring the average up. It is evident that the general practitioners in this community recognize that early surgical intervention gives the only hope of cure in this class of cancer. The cases of cancer of the breast were kept under observation longer than those of cancer of the uterus, the figures being 3.5 and 1.1 months respectively.

In the post operative recurrent cases seen at the Huntington Hospital, an attempt was made to determine if the operation had been adequate or inadequate. In many of the cases the operation had been "complete" as judged by the appearance of the scar,—that is the breast with a sufficient amount of skin, both pectoral muscles and the contents of the axilla had been removed. A great many, on the other hand, had been incomplete, and the breast with a small amount of skin and a portion of the greater pectoral only had been removed. In these cases some attempt had also been made to dissect the axilla, but a proper dissection cannot be made without removing all but the clavicular portion of the greater pectoral and by the removal, or at least division, of the pectoralis minor.

CANCER OF THE BREAST.

First Symptom (data on 167 cases).—Tumor was the first symptom in 151 cases, in 12 of which it was first noticed after trauma, and in 6 of these it was accompanied by pain. In 7 cases, the first symptom was pain, but these 13 cases in which pain was present did not con-

sult a physician sooner than the others in which it was not present.

FIRST SYMPTOM.

Tumor	151
Pain	7
Retracted nipple	4
Discharge	3
"Lactation Cancer"	2
Not stated	10

Delay to First Consultation (data on 150 cases).—The average length of time the patient had noticed symptoms before consulting a physician was 12.5 months. (One case had been excluded in making this average,—a cancer arising in a nonmalignant tumor of 44 years duration.) Thirty-three per cent. of the cases sought treatment on the first appearance of symptoms, and 44% inside of 2 months.

DELAY TO FIRST CONSULTATION. Average 12.5 months.

50 cases or 33% at once	
66 " " 44% inside of 2 mos.	
112 " " 74% inside of 12 mos.	
15 " " 10% 2 to 3 years	
10 " " 6.6% over 3 years	

Delay from First Consultation to Operation Advised (data on 129 cases).—The average delay was 3.5 months,—a distinctively shorter time than shown in the Pennsylvania report. In 86% of the cases operation was advised at the first consultation, and in 90% inside of three months. Sixteen cases were inoperable when first seen, 5 refused operation, and in 3 the diagnosis is in doubt.

Delay from Operation Advised to Operation (data on 121 cases).—Operation was performed at once in 84% of the cases, and the average delay was only 1.3 months.

Recurrence after Operation.—Eighty-five of the cases seen at the Collis P. Huntington Hospital were inoperable postoperative recurrence. The recurrence was local as well as general in 76 out of 81 in which the site was stated. The average length of time from operation to the appearance of recurrence was 18.2 months. In 14% of the cases recurrence was not noted till over three years from the date of operation, and in 6% over 5 years. All of these cases had a local as well as a general recurrence. These figures show the fallacy of calling a cancer of the breast "cured" if it has remained well over three years from the date of operation.

LATE RECURRENCE.

3 to 4 years	.....	7 cases
5 to 6 "	.....	2 "
8 "	.....	1 case
10 "	.....	1 "
11 "	.....	1 "

Duration of life after operation (data on 80 cases observed at the Huntington Hospital).—The average duration of life was 31.7 months. Seventy-three per cent. of the cases died within three years from the date of operation.

DURATION OF LIFE AFTER OPERATION.

Died in the first year	....	21 cases
" " " second year	..	20 "
" " " third year	...	19 "
" " " fourth year	...	10 "
" " " fifth year	....	5 "
" " " sixth year	...	2 "
" " " seventh year	...	1 case
" " " eighth year	..	1 "
" " " ninth year	...	1 "
" " " eleventh year	...	1 "

(Nine cases living with recurrence.)

Miscellaneous data.—A certain amount of information was obtained in reading over the records of the cases treated at the Huntington Hospital, in regard to the treatment of inoperable or recurrent cancer of the breast. The x-ray was used as a palliative measure in the treatment of 36 cases, 20 of whom received distinct benefit. This was shown in the improvement in the patient's general condition, the apparent retardation in the rate of growth of the tumor, and when the growth was ulcerated, the transformation of a foul discharge into a clear serous one. In 14 cases the patient stated that there was no improvement, and in two we have no data.

Radium was employed in the treatment of 7 cases. In four there was no change noted. In two cases radium treatment of what appeared to be undoubted local recurrence, was followed by a disappearance of the nodule. In one of these cases, which has since recurred, the tumor was probably an epithelioma originating in the skin. The other case is still living, but has had other local recurrences.

Three cases were treated from a serum made from the ascitic fluid from a case of carcinoma of the ovary. One of these showed slight temporary improvement. Three cases were treated with iodine, and one with Coley's serum without improvement.

In one case in which excision of the tumor for microscopic examination was done, followed

later by a complete operation, there was a rapid recurrence.

CANCER OF THE UTERUS.

First symptoms and other etiological facts.

First Symptom

Bloody discharge	.....	67
Foul discharge	.....	14
Irregular menses	.....	8
Frequent urination	.....	1
Pain	.....	11
Not noted	.....	9

Multiparae	.....	68
Primiparae	.....	4
Fact not noted	.....	37

Menopause

Passed	.....	51
Not passed	.....	31
Not noted	.....	25

Delay from Appearance of First Symptom to First Consultation (data on 90 cases).—The average delay was 6.4 months. This is a shorter period than in the breast cases, but, on the other hand, 30 cases or 33.3% were deemed inoperable when first seen. It is noted in two cases that no vaginal examination was made at the first consultation.

Delay First Consultation to Operation Advised (data on 65 cases).—The average delay between the first consultation and the time operation was advised was 1.6 months. In but one case, where operation was advised, was it refused.

Delay Operation Advised to Operation (data on 53 cases).—The average delay was 1.6 months. Three cases in which operation was advised at the Huntington Hospital and in which a Wertheim hysterectomy was later performed, died of general peritonitis. Two other cases deemed inoperable at the first consultation, improved under radium treatment and hysterectomy was performed later. Both of these cases are living without recurrence 11½ and 2 years after operation, respectively. Twelve cases had some minor operation performed before the appearance of the cancer, such as the removal of a "tumor" of the cervix, curetting, etc. These cases, from the histories, were probably malignant from the first. There were four cases of cancer arising in the cervical stump after a supravaginal hysterectomy for fibroids.

Operation to Recurrence (data on 30 cases treated at the Huntington Hospital).—In 28 of these the recurrence appeared inside of three years, the average time being 10.3 months.

There were two cases of late recurrence, one 51-2, the other 71-2 years after operation.

Length of Life After Operation in Fatal Cases (data on 41 cases treated at the Huntington Hospital).—Nine of the cases are still living. In the other 32, the average length of life after operation was 25.1 months; 54% of the deaths occurred within 2 years after operation, and 75% within three years.

The following facts in regard to the treatment of the inoperable cases seems worthy of note. Radium is used at the Huntington Hospital in the treatment of malignant disease, but its use is never advised if the case is suitable for operation. The cases of cancer of the uterus treated with radium were all inoperable when first seen or their condition was such that operation was contraindicated. Many were postoperative recurrences. Carcinoma of the cervix is a type of cancer particularly favorable for radium treatment and it was employed in 40 cases, with marked improvement in 31 and no noticeable effect in 7. The results of treatment are not known in 2 cases.

Nine of the 31 cases are at present living, as follows:

Two of the cases were inoperable when first seen, but after treatment with radium they improved, and a Wertheim hysterectomy was performed. Neither case has any evidence of recurrence yet, 11-2 and 2 years after operation. The diagnosis was confirmed by a microscopic examination of the specimens.

Three cases of local postoperative recurrence, as evidenced by the appearance of a hard tumor in the vault of the vagina and a bloody discharge, were treated with the disappearance of the tumor. These three cases have at present no evidence of recurrence 1, 2, and 3 years respectively after treatment. The diagnosis was confirmed pathologically in two. Two other cases of post operative recurrence are living, both of which have been much benefited by treatment, but still have evidence of disease.

Two cases that were considered inoperable at the first consultation, are still living, 2 and 3 years, respectively, after treatment was begun. In one of these cases, the tumor disappeared, but later recurred, and the patient now has a vesicovaginal fistula. The other case is much improved, but still has evidence of tumor.

Unfortunately, we have only clinical evidence that certain of these cases were cancer. For-

merly at the Huntington Hospital we insisted on removing a specimen in every case before treating with radium, but we have given up the practice because of the danger of spreading the disease. If a specimen can be obtained, however, without danger to the patient, it is always done.

OZONE IN SWIMMING POOL PURIFICATION.

BY WALLACE A. MANHEIMER, PH.D., NEW YORK CITY.
Secretary, American Association for Promoting Hygiene in Public Baths.

THE recognition of the necessity for safeguarding the sanitary condition of swimming pools has been followed by the elaboration of various methods of control based mainly upon recognized procedures of water purification. There are, however, certain problems which must be met in swimming pool purification which do not arise in the disinfection of drinking water.

The purity of drinking water is the concern of the whole community. Most large municipalities have special Water Boards, whose sole duty is the maintenance and protection of the water supply. Communities are in the habit of paying large fixed amounts for the maintenance and particularly for the protection and purification of the water. Daily bacterial analyses and careful chemical control are practised by specially trained sanitarians in order to insure safety. An initial thorough purification of the drinking water supply, followed by careful protection of the water until delivered to the consumer, constitutes the substance of all methods employed.

In the swimming pool, initial purification of the water alone is of small value, in view of the fact that each bather adds contamination to the water. Some method of continuous purification, therefore, is necessary. At first attempts were made to maintain in the water disinfecting substances strong enough to destroy infectious material as soon as added by bathers. Obviously larger amounts of chemicals had to be used under these circumstances than in the purification of drinking water, and after the pools had been used for some time, the larger amounts of organic substance in solution and suspension, necessitated the use of a quantity of disinfectant incompatible with

the continued use of the pool. Such a method of pool disinfection, therefore, was seen to be impractical and has since been abandoned.

Evidently if a method of continuous purification is necessary in swimming pool control and especially if continuous disinfection as above outlined is impracticable, recourse must be had to dilution. At first this method appeared to be a mere makeshift, open to numerous objections, but soon a number of exceedingly important advantages developed from its application.

The continuous refiltration and recirculation of the water in a swimming pool effected a great saving of water as well as of fuel used to heat it. The latter economy alone justified the procedure. In many communities, however, water is fairly expensive, therefore economies in its use are highly desirable also. Water constantly refiltered becomes clearer and clearer, as a result of the more efficient removal of suspended matter and of the gradual bleaching and elimination of dissolved coloring substances.

It was soon found that recourse to refiltration alone did not maintain a water of such purity as to constitute a sufficiently reliable method of swimming pool control. Various methods of water purification were coupled with the process of refiltration, many of them successful enough from the standpoint of their bactericidal action, but inefficient from the point of view of practical application.

The use of the halogens (calcium hypochlorite, sodium hypochlorite and anhydrous chlorine) notwithstanding their successful application to the purification of large water supplies, proved very vexing in the disinfection of swimming pools.

The large quantity of organic matter in a swimming pool necessitates a correspondingly large amount of disinfectant, resulting frequently in the production of a water of disagreeable taste and odor. The determination of a minimum quantity of chemical to be used in a pool proves impracticable, because of the fluctuating load of bacteria and organic pollution. In order to secure a sufficient reduction of bacteria under average conditions, a pool must be treated with an excess of disinfectant which operates seriously to reduce the patronage of the pool, in consequence of which the chemical is usually added to the pool in such minimum doses as to be of little, if any, value.

While it is true with most waters that careful control of the quantities of chemical added would result in water of good sanitary quality, such control in the majority of swimming pools is not practicable and hardly worth the trouble in others, in view of the excellent automatic method recently introduced.

Chemicals other than the halogens, notably copper sulphate, have been recommended by a few investigators. The quantities recommended for use, however, have proved ineffectual after long and careful series of experiments, and larger quantities have produced waters so astringent as to preclude their use.

Recently ozone* has been applied to the purification of swimming pools and has proved not only efficient as a disinfectant, but practical in operation. Ozone is a powerful oxidizing agent which, when properly added to the water, completely destroys all bacteria as well as removes tastes and odors. From 40% to 70% of the organic matter in suspension and solution in water is destroyed through proper initial treatment with ozone. In refiltered pool water it is possible, by repeated action, to secure an even greater percentage of reduction than that mentioned. The distribution of the organic matter and of the coloring matter in suspension and solution renders the water more transparent, thereby enhancing the appearance of the pool while at the same time reducing the hazard of accidental drowning.

The application of ozone to the purification of drinking water is of long standing. In France there are twenty-six large municipal plants where ozone is used. The St. Maur plant in Paris delivers 24,300,000 gallons of ozonized water daily, the Bon Voyage plant supplies Nice with 6,480,000 gallons daily, the plant at Villefranche supplies 7,020,000 gallons daily, and the plant at Petrograd supplies 14,040,000 gallons daily, to mention only some of the largest. Germany, Spain, Russia, Roumania, many South American Republics, and other countries have successful ozone plants. There is, therefore, nothing novel or startling in its application to swimming pools.

The technical details connected with the process of adding ozone to the water, need not be reviewed here. Reference may be had to the

* U. S. Public Health Reports, March 1, 1918; Journal A. M. A., June 29, 1918. See footnote following.

papers already published on this subject.* Suffice it to say that ozone is generated in the customary way from atmospheric oxygen by passing dry air over a silent electrical brush discharge, and then passing the ozonized air into the bottom of a tall tower containing the swimming pool water. The process here so briefly described, is a distinct engineering problem in every case, the solution of which, if attempted by the amateur, particularly one not acquainted with the handling of ozone, may result in dismal failure. On the other hand, a properly designed system will give continued satisfaction, from the points of view of efficiency in water sterilization and of economy and reliability in operation.

A careful study of the cost of operation of an ozone plant has shown it to be one of the most economical methods so far applied. Where alternating electrical current is available, a daily electrical consumption of 2 K. W. is all that is required to operate an ozone plant of sufficient capacity to disinfect a 60,000 gallon pool. The total cost has been computed to be between 11c. and 15c. a day, figuring electrical current at from 5c. to 7c. per kilowatt and allowing one cent a day for the cost of occasionally replacing the calcium chloride in the air drying chamber. Where direct current only is available, conversion of the current to the alternating type is necessary, entailing an additional cost of from 7c. to 14c. a day.

One of the chief features of an ozone purifying plant in a swimming pool, is its automatic character. Occasional cleaning of the ozone tubes and infrequent replacement of calcium chloride are all that is necessary. Furthermore, ozone can be used in excess without producing objectionable taste or odors in the water, a circumstance of considerable importance, since it allows of adjustment of apparatus to supply a little more ozone than is necessary to destroy the maximum load of organic matter which can be expected in a given case. This adjustment, subsequent to a proper design of installation, results in a permanent operation of the pool in an automatic way, involving no technical control. With untrained attendants, therefore, a pool purified by ozone can be maintained in a safe and sanitary condition at reasonable cost, advantages which no other method so far suggested, has been able to offer.

The low cost of the process, the automatic application, the reliability and ease of control and the destructive effects on bacteria, organic substances, and coloring matters in the water, strongly suggest the adoption of ozone as a standard method of swimming pool purification.

THE NEW TREATMENT FOR PARALYSIS AGITANS.

BY WALTER B. SWIFT, M.D., BOSTON.

SINCE it is pretty generally agreed that paralysis agitans is practically incurable, anyone claiming for a new method of treatment that it will lead to complete cure in the majority of cases would have to carry a heavy burden of proof. No such claim is put forward for the treatment which it is the business of this paper to outline. In so distressing a disease, however, alleviation in even a small degree is a desideratum, and it may be definitely asserted that the following treatment, if methodically and persistently carried out, will bring relief to most cases, although, perhaps, in varying degrees.

Three cases of definite improvement may be mentioned here to show what the method has actually accomplished. One case complained of a very severe tremor and of great difficulty in getting to sleep at night. Six months of treatment reduced the tremor perceptibly and made it possible for her to get to sleep in fifteen minutes. After only three weeks of treatment, a man overcame his tremor to such an extent that he could read his newspaper while holding it in his hands,—a thing impossible to him before. A third patient, after three months of treatment, reported that her tremor was reduced by about one-third. Obviously, none of these cases shows a cure, but the improvement in each case has been sufficient to win the lasting gratitude of the patient. Further study of the method might well bring better results. At any rate the method seems to be worthy of consideration.

What, then, is this method? It consists solely in the muscular movements of a simple nature, gone through very slowly, at the rate of about one foot to the second, with strong mental concentration upon the movement while it is in progress. First come movements of the right foot, then of the left, then of the legs successively, then of the right and left arms

* Mind and Body, January, 1918; U. S. Public Health Reports, March 1, 1918; Journal A. M. A., June 29, 1918; Medical Review of Reviews, July, 1918.

in order, then of both arms, and finally of the hands and fingers. The object is not muscular development but rather development of nervous control over the muscles. The movements should be regular and they should be definitely prescribed, but it is not necessary to outline any special form for them in this place because they can easily be invented by anyone.* No particular value need be attached to any special set of exercises, because the nervous control is the same in one as in another.

There is one specific direction, however, that must not be overlooked, and that is that all the exercises must be taken very slowly, at the rate of about one foot of movement to the second, if any benefit is to result. This caution is given as the result of a rather extensive experience with both successful and unsuccessful cases. The successful patients have been those who have taken the exercises slowly over a considerable period of time. Those who have failed to derive an appreciable benefit have been those who, though beginning slowly, have gradually grown tired of the monotony and "speeded up." It seems likely that the essence of the entire treatment lies in this slowness of movement, and perhaps also in the mental concentration which should accompany the movement.

It is natural to ask whether the improvement which has resulted from this treatment can be explained. In answer to such a question one may say that three suppositions seem possible. The improvement may be ascribed to muscular development, to therapeutic suggestion, or to the development of some central inhibitory nervous control, working automatically to prevent the familiar movements of paralysis agitans. A consideration of these theories will center attention upon the necessary slowness of the movements and will show why other methods do not bring the desired results.

First as to the theory that improvement is due to muscular development. It is obvious that the exercises must result in some slight development of the muscles if they are performed several times a day for a number of weeks or months. But if muscular development alone were sufficient to correct this tremor, the same result would be obtainable from other processes of muscular development.

I see no reason to assert that this particular method of developing the muscles by very slow movements is sufficiently different from gymnasium methods to cause all the difference noted, if indeed the improvement is due to a muscular growth. The consideration, however, which seems to dispose completely of this view, is the fact that when the speed is increased beyond a certain point there is no benefit resulting.

The second theory ascribes the benefit of these exercises to suggestive therapy. This theory is more difficult to attack. We know that a great many patients, even chronic cases, improve a little under suggestive therapy. Even the moving from one ward to another or the appearance of a new doctor often causes noticeable improvement. But the benefit that is derived from these exercises is not of that type. It is rather an automatic cessation or diminution of the tremor. No one accustomed to seeing patients outgrow functional disorders under suggestive therapy would class this improvement under the same head. In the use of suggestive therapy one gets improvement on a large scale, often suddenly, sometimes almost immediately. I have known a case of hysteria almost entirely cured by a single treatment by this method. That is not the sort of improvement which is observed in the case of paralysis agitans under this form of treatment. The improvement we do get is, on the contrary, a slow, gradual growth. This growth, as I have said, seems to be dependent upon the rate of speed at which the exercises are taken. It seems to me, therefore, although the distinction is by no means an easy one to make, that there is evidence enough to exclude suggestive therapy as a cause of the improvement.

The last theory is that this improvement results from centrally developed inhibitory power or influence in the brain which acts automatically to control the tremor more or less. When one considers that the patients go through a set of evenly controlled motions, with concentrated attention, several times a day for weeks or months, one can easily see, even if he has had no actual experience with such cases, that some degree of nervous control must be developed in them. In fact, when I myself have gone through these exercises five or six times, I have felt in my own nerves and muscles an un-

* For outline of the Swift Exercises see previous article, "A New Treatment for Paralysis Agitans," *Journal A. M. A.*, Dec. 16, 1916, Vol. lxxvii, pp. 1834, 1835, by W. B. Swift.

wonted steadiness. If anyone wishes to know just what is meant, he should try the experiment himself.

The purpose of these exercises is to develop just this feeling of pervading steadiness to such a pitch that it endures as a constant feature of the patient's physical life. By my own experience with them and by my observation of patients' use of them I am led to believe that these exercises do build up a *central inhibitory control*. It seems to me that the type of exercise would suggest that much in itself, when taken together with the great significance which must be attached, as has been seen, to the pace at which they are gone through.

I conclude, then, that these exercises, when slowly performed, provide a means of developing some central inhibitory control which quiets, in a measure, the involuntary motions and tremors characteristic of paralysis agitans.

TYPES OF MEN AS OBSERVED AMONG RECRUITS.

BY J. MADISON TAYLOR, A.B., M.D., PHILADELPHIA.
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EXTRAORDINARY opportunities are offered by the examination of the millions of young men, candidates for military service, to learn significant facts obtainable in no other way. Among these facts are types of conformation, of disposition, of temperament, of character, of capabilities, of adaptation, of endurance, of maintenance of physiologic and of psychologic poise, of nutritional balance and the like.

The population of America being exceptionally varied in its origins extraordinary opportunities are thus afforded to get a critical line on, or purview of, practical problems in anthropology, racial admixtures, hybridism, stability of racial strains, susceptibilities to environmental influences, to fatigue and anxiety stresses, to infections and to recoverability from infections, to variants in the manifestations of devolutionary agencies, hereditary and environmental.

Studies should of course, if possible, embrace those individuals selected from those rejected. The difficulties of such an appraisal need not be so large if a comprehensive yet economic system of tabulation was adopted. However,

it is probable that only those who are accepted could be subjected to such assessment and only the outstanding phenomena till the importance of the census becomes appreciated.

The primary examiners at the recruiting stations could not be expected to do much of this work, although it is entirely possible some facts of inestimable value could be learned and recorded even here by use of special cards. Among the rejects these points could be followed up, and among them many facts of greater practical as well as scientific importance might be learned than from the more perfect accepted individuals.

Already the special examiners of recruits are making important observations which could readily be rendered of yet greater value if amplified in certain particulars desirable for statistics.

Among these special examiners are those of the mental status which could readily include on blank forms associated anomalies of conformation, type, functional status of the ductless glands. Those who examine for evidences of infections, T.B., and syphilis, could add to their observations facts which might lead to amplification of our knowledge of the susceptibilities to, or capabilities of, recovery from infections. So of experts in cardio-vascular renal disorders, a few associated or correlated facts added would afford enormous enlightenment in essential directions.

The orthopedic experts could contribute much to a more comprehensive knowledge of the origins of deformities, of variants in tissue tone, of susceptibilities in the realm of development and of metabolic and of endocrinologic data. Here we have the realm indicated by Major Joel E. Goldthwait as "the challenge of the Chronic Patient," the indicia of anomalies in growth forces, developmental peculiarities, as shown not only in conformation but in body chemistry. Such matters have by no means become of common interest or knowledge. Until they have become so clinical results must be narrowed in essential directions. Much of the data existing is in such form and place of record as to escape attention. It is also lacking in systematic presentation, in symmetry, in comprehensiveness. Let us have aid from the present observers in the practical field afforded by military opportunities.

Society Report.**ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.***(Continued from page 626.)***A CARCINOMA OF THE EPIGLOTTIS AND ROOT OF THE TONGUE REMOVED BY THE SIMPSON RADIUM NEEDLES, WITH DESCRIPTION OF A NEEDLE-PLACING INSTRUMENT.****OTTO T. FREER, M.D., CHICAGO.**

Dr. Frank Edward Simpson of Chicago in 1914 devised short, hollow needles one and one-sixteenth of an inch long and one-sixteenth of an inch thick, made of steel and platinum plated with gold, the cavity of the needle being packed with twelve millimeters of radium sulphate, which is sealed within the needle after the detachable eye portion of the needle has been screwed down upon its hollow shank. The wall of the hollow needle is three-tenths of a millimeter thick—thick enough to filter out the irritating alpha and softer beta rays, while permitting the hard beta and gamma rays to pass freely through the wall of the needle.

The needles are stout enough to endure the firm grasp of a needle holder for their introduction into the tissues.

With several Simpson needles the effective so-called crossfiring of radium rays may be produced—that is, instead of the radium rays proceeding from a single source in the center of a growth it is easy to place a number of needles at its periphery as well as in the center, so that not only is the growth evenly influenced by multiple radiation, but the apparently healthy zone about the tumor is deeply penetrated by the rays, so helping to prevent a local return of the growth.

A valuable quality of the needles is their comparatively easy insertion, so that only occasionally, where a tumor is tough and resistant, is it necessary to place them in a preliminary knife cut, for as a rule they may be directly thrust into the growth.

It is generally agreed that malignant tumors should be destroyed at one sitting by one very large dose of radium. This is not only done in order to minimize the danger of metastases risked by waiting for the effect of lesser doses

at intervals, but it is experience that the effect of a single large dose is proportionately greater than that of the sum of smaller ones that equal it in quantity. It has also been found that a tumor is less influenced by later doses than by the first one, a species of tolerance being established for radium. The demand for a single completely effective large dose of radium rays is filled by leaving the Simpson needles in place from nine to twelve hours. Their efficient screening prevents the undesirable integumental burns that were so common before it became known that the soft beta rays and the alpha rays must be filtered out.

The difficulty in accurately inserting the needles with forceps in this case, the roughening of the surface of the costly needle by the blades and the annoyance caused by the dragging thread that trailed the needle, led the writer to construct a needle placer for inserting the needles, a device which in the case of a carcinoma of the laryngopharynx just treated has permitted their exact introduction into the flesh with an accuracy and ease that, he thinks, will make it possible to needle even intrinsic carcinomas of the larynx by the indirect, mirror method of laryngoscopy, a method so much less distressing to the patient than direct or suspension laryngoscopy.

OBSERVATIONS ON PNEUMOCOCCUS INFECTION OF NASAL ACCESSORY SINUSES.**CORNELIUS G. COAKLEY, M.D., NEW YORK.**

One hundred and eighty-eight cases were observed. The acute ones with the history of a duration of one month or less numbered one hundred and nine. The remainder were chronic.

Pneumococci were present in 44% of the acute cases, and in most of these they were the sole organism. In the chronic cases this organism was found in but 13%.

These results seem to warrant the inference that in acute inflammations probably half the cases might be due to auto-infection, while the other half were due to infection from some outside source.

In the chronic cases the larger number were accompanied by autoinfecting organisms.

The author records a case of pneumococcus tonsillitis followed at an interval of two weeks with a pneumococcus infection of the left antrum. In the second case both antra were suc-

cessively involved, one at a later period than the other, with a pneumococcus in each instance.

The third case had beginning infection in the larynx and trachea, secondarily involving his antrum, with pneumococci.

The fourth case had a bilateral maxillary sinusitis; there was a pure culture of the pneumococcus in both. Signs of consolidation were found at the base of the right lung next day, and antipneumococcus serum was administered, followed by a chill, rising temperature to 106°, and an immediate drop in the temperature with pneumococcus in his sputum, without any further attention to his antra, as the patient was too ill to be treated. Spontaneous recovery followed.

The writer asks what rôle the serum played in curing his maxillary sinusitis?

The fifth case recorded was the wife of the preceding patient, with pure culture of pneumococcus from the discharge, evidently following infection from her husband.

The sixth case was one of an acute otitis with pure culture of the pneumococcus arising from an infection of the same character in the left antrum.

From a study of this series of cases the writer feels justified in drawing the two following conclusions:

First. Pneumococcus infection of the nose and its accessory sinuses does not in any large percentage of cases result in a pneumococcal infection of the lungs. Only one of our cases developed pneumonia.

Second. There would seem to be direct evidence that in one of the cases the infection, pneumococcus I, was transferred from husband to wife.

We hold that most severe acute rhinitis attacks are the result of infection, either with autogenous or foreign bacteria or viruses. The presence of pneumococcus rhinitis and sinusitis during the stage of profuse secretion, accompanied by coughing and sneezing, must be a fruitful source of disseminating pneumococci, some of which may invade only the upper air passages of the victims of the infection, while in other patients, finding a suitable soil in the deeper air passages produce a pneumonia. There is abundant evidence that pneumonia is infective, and may not one source of infection be in these pneumococcal head colds?

DISCUSSION.

DR. CLEMENT F. THEISEN, Albany: Some time ago I published a paper on "Pneumococcus Infection of the Nasal Cavities in Children," which was based on a small epidemic that I witnessed in the Child's Hospital in Albany. In these cases the children ranged from four to fourteen years of age, and numbered not over half a dozen. We obtained in all the cases the pneumococcus from the nasal secretion. In two cases there was a marked exophthalmos with serious ethmoidal and frontal involvement. These two children were operated on and made good recoveries. We had one death, in a child of four, with sinus involvement and a high temperature. Pneumococcal serum was administered without effect. In all the cases there was profuse nasal discharge, very high temperature and very serious involvement of the cervical lymphatics, and the pneumococcus was obtained in pure culture from the nasal secretion.

DR. HENRY L. SWAIN, New Haven: I had three cases this winter in which the pneumococcus Type I was found, and in which the immediate onset of pneumonia necessitated the calling in of an internist, in order that the necessary attention might be given to the chest condition, so that I could not follow the case for a number of days. Two of the three cases recovered and one did not. The sinus condition absolutely cleared up within three days after the administration of the pneumococcal serum in those that recovered.

DR. CORNELIUS G. COAKLEY, New York City, closing: The only case in which the question of giving pneumococcus serum of Type I was the one in which the serum was very efficacious. I was surprised to find that from such a severe attack the patient recovered from his sinusitis without further treatment. Of course, they might have recovered without it. Some recover without treatment.

THE DIAGNOSIS AND PROGNOSIS OF HYPERTROPHIC SPHENOIDITIS.

GREENFIELD SLUDER, M.D., St. Louis.

Of the utmost importance is the kind of light to be used in postnasal examinations. Sunlight would be ideal were it not for the great heat conveyed, which renders it useless.

The light made by Leitz under the name of the "Lilliput Arc Lamp" is as satisfactory as

the sun and always available. The carbons meet at right angles and give a brilliant white light, which is condensed into a pencil by a convex lens. It is a different light from that of the arc lamp used in street illumination. In burning, a little white smoke is given off, which condenses to a white powder, indicating that the carbons have been impregnated with a zinc salt, which may be the way in which the white light is made. Leitz declines to tell the process of manufacture.

The advantages of a proper light are obvious, in that diseased conditions, as also the presence of a small amount of pus, are the more readily recognized. At times the Holmes nasopharyngoscope is of the utmost help by virtue of the right angle vision.

The author presents a clear description of the normal post-ethmoid-sphenoid district.

All changes in these parts should be carefully noticed, because a very slight surface change is often accompanied by much more advanced and serious change in the deeper parts, as is often shown by the finding of polyps within the cells at the time of operation, no evidence of which was previously recognized there. Patches of inflammation may often be found with the pharyngoscope within the cells, which are very pernicious and disastrous, according to their location, for example, upon the optic canal.

He does not believe that the postethmoid-sphenoid operation is free of danger in the hands of any rhinologist. He has seen the eye, which it was intended to save, lost for the vision it had at the time of operation, and he had learned of death following a number of these operations. Sometimes a sphenoid sinus makes the inner part of the canal, and sometimes the postethmoid makes it, and there is no way to tell in a patient at the time of operation which it is, hence the sure practice is to do the combined operation.

The distribution of the hyperplastic process here is of great interest and various.

The presence of pus is not the only indication of diseased conditions here, as there may be active inflammatory conditions without it. The author calls attention to the appearance of the epithelium under different conditions. With a proper light, when pus is present it is almost invariably greenish yellow or yellowish green, whereas the opaque epithelium is white or very slightly bluish white.

This form of sphenoiditis is rarely unilateral. Anomalous anatomic arrangements of these parts exist, and failure to bear these possibilities in mind may defeat our best technical efforts, and these anomalies are described. The diagnosis becomes exceedingly difficult in children.

As to prognosis, the infection "coryza" in these parts may be of grades so slight that the patient is not cognizant of it and still make the ocular or the painful lesions. The acutely inflamed area may, however, be seen with the pharyngoscope after the cells are opened. And for the second class of cases the prognosis is also for relief, but it must needs be slower and less complete, although in the long run the result is preëminently worth the effort it took to get it. These cases have seemed to be less disturbed by coryzas.

The postethmoid-sphenoid radical operation, properly performed in the first class of cases almost always gives a technical result that remains satisfactory—that is, the openings of the cells remain as the operator makes them. In the second class they almost always get smaller, and very frequently close up completely, and so must be made again, often several times.

In later life an involution of the hyperplastic changes—rarefying otitis—takes place, sometimes beginning about the fiftieth year and sometimes later. The author has seen this in unoperated cases accompanied by corresponding cessation of symptoms (in one case an ophthalmic migraine).

(To be continued.)

American Medical Biographies.

RICHARDSON, MAURICE HOWE
(1851-1912).*

MAURICE HOWE RICHARDSON, Boston surgeon, was born in Athol, Mass., December 31, 1851, and died in Boston, July 31, 1912. He was the son of Nathan Henry and Martha Ann Barber Richardson, of New England descent. When he was eleven, the family moved to Fitchburg, where he graduated at the High School; he graduated at Harvard A.B. in 1873; and the following year taught in the Salem High School, where he studied with Dr. Edward B. Peirson for a year, and then entered

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

the Harvard Medical School, second year, and graduated M.D. in 1877. On July 10, 1879, he married Margaret White Peirson, daughter of Dr. Peirson, and one of his former High School pupils. They had four sons, among whom were Drs. Edward Peirson and Henry Barber and two daughters.

Dr. Richardson began his career as a private assistant to the demonstrator of anatomy at the Harvard Medical School, after resigning the position of surgical house officer at the Massachusetts General Hospital. His great desire was to be a surgeon, and the most direct route to practice was through the dissecting room. He was later demonstrator, and then assistant professor of anatomy. He served under Oliver Wendell Holmes, who resigned as professor of anatomy in 1882. In 1895 he became assistant professor of clinical surgery, and in 1907 he was made Moseley Professor of Surgery.

He was surgeon to out-patients at the Massachusetts General Hospital in 1882, and visiting surgeon in 1886. In 1911, when a rearrangement of the surgical staff was made with continuity of the service he was made surgeon-in-chief, a position which he held up to death.

During his early practice, he was surgeon to the Carney Hospital and consulting surgeon to other hospitals in Boston, and in various New England towns. His work outside of anatomy lay along clinical lines, and his surgery grew out of his superior anatomical training and experiences as a surgical assistant. His originality lay in his ready adaptation of sound surgical principles and extensive anatomical knowledge to the many new problems created by the antiseptic era, which dawned as he entered the field. When he began his work abdominal surgery meant little more than an occasional ovariectomy, and the surgery of the appendix, the gall-bladder and the stomach did not exist.

He wrote from the fullness of large personal clinical experiences, and as he worked and wrote, abdominal surgery grew *pari passu*. He frequently attended medical societies, and wrote for journals, covering a wide range of subjects. He was original, incisive, and notably frank in acknowledging mistakes.

One of his first papers describes a gastrotomy in 1886, for a set of false teeth low down in the esophagus. He opened the stomach and pulled the plate out through the cardiac end

and through the stomach, the first gastrotomy for the removal of a foreign body in the esophagus.

In 1887 he reported 15 laparotomies; in addition to the case just mentioned, 9 were ovariectomies.

When R. H. Fitz pointed out the relation of the appendix to perityphlitis and peritonitis, Richardson was quick to see its surgical importance and became an early champion of operative treatment; his relations with Dr. Fitz remained intimate through life. In 1892, he was able to draw conclusions from 81 of these cases, 40 of which were treated by operation; in 1894 he had had 181 cases, and in 1898 as many as 757. From the study of his acute cases, he was early convinced of the need for the removal of an appendix the subject of previous attacks. His numerous papers on the appendix educated the profession in the diagnosis and the demand for early surgical intervention.

Numerous papers also testify to his keen interest in diseases of the gall-bladder and biliary system. His first successful cholecystotomy was published in 1889. A second paper, in 1892, reported 10 operative cases. From this time on, the diagnostic and surgical difficulties presented by these cases formed the subject of repeated communications, which remain a substantial part of the foundation on which surgery of the biliary tract rests today.

His various papers cover nearly the entire range of abdominal surgery, as well as other surgical subjects.

Papers may be particularly mentioned on the stomach, pyloroplasty, pylorectomy, and especially a successful total gastrectomy (1898); on pancreatitis and pancreatic cysts; on intestinal obstruction, intestinal resection, lateral anastomosis, and idiopathic dilatation of the colon; on omentopexy; and on tuberculosis of the mesenteric glands; on nephrectomy, nephrorrhaphy renal stone; intra-peritoneal cystotomy, ureteroplasty, ureteral implantation; on ovarian tumor with twisted pedicle, extra-uterine pregnancy, the surgical treatment of fibroids, and cancer of the uterus. He was at one time much interested in cranial and nerve surgery, shown by writings on brain tumor, removal of the Gasserian ganglion, nerve suture, and spasmodic torticollis. Other subjects were: diverticulitis of the esophagus, with two cases

of successful resection, cancer of the breast and acute and chronic empyema.

Later studies deal more with surgery in its wider aspects, its dangers and responsibilities; the relation of the surgeon to his patient, and his profession; the importance of an alert conservatism: in these he sounded a note of warning to a profession flushed by its successes in the new fields.

A systematic treatise on surgery of the abdomen was planned and partly worked out, but never finished. His most comprehensive articles were a contribution to Park's *Surgery by American Authors*, 1895, on "Surgery of the Abdomen and Hernia," and to Dennis' *System of Surgery* in 1896 on "Surgery of the Alimentary Tract."

He had a large practice, and never sought to make life easy, being ever ready to respond promptly to any call to operate in nearby towns or at a distance, trips both time-consuming and exhausting. He subscribed to and used the Corey Hill Hospital, Brookline, in 1904, but in the later years he distributed his patients in several small hospitals. Added to a strenuous private practice were hospital practice and teaching in the Medical School, and the result was that day after day was spent in a vain effort to catch up with his engagements; writing was done customarily in the early morning, or at intervals between operating.

As a teacher, his talents lay in clinical lectures and demonstrations, and he was at his best demonstrating a case, or an anatomical region, or a method, before students, illustrating by rapid accurate blackboard sketches, often using both hands. His personality inspired and stimulated students, and few will forget his insistence on the responsibilities and dangers of surgery, and on the importance of exact knowledge of anatomy and living pathology.

Dr. Richardson, as a member of the American Medical Association, was Chairman of its surgical section in 1904, a member of the Southern Surgical Association, and President of the American Surgical Association in 1902, and a charter member of the International Surgical Society.

Physically he was well adapted to the strain and demands of his life. As a young man his strength and endurance were remarkable, and were well shown by his walking in a single day from Fitchburg to the top of Monadnock Mountain and back—nearly sixty miles; he swam

across Vineyard Sound, and also the nine miles from Salem to Magnolia.

His chief relaxations were music and outdoor pursuits. He took up successfully the piano, the flute, the cello, and the bassoon. Later years limited his playing to the piano during evening visits to the Corey Hill Hospital.

He was fond of sea and woods, and in summer got never-failing recreation from evenings and Sundays at Marion, spent chiefly on the water, fishing for bluefish or squeteague. Many fall vacations were spent in the Adirondaeks, often with R. H. Fitz, taking long walks over mountain trails. His place at Eastham on Cape Cod, had a particular charm for him. His principal occupations were walks along the ocean dunes or the bay, fishing or clamming expeditions along the shore, and searches for arrowheads in the plowed fields. The coast-wise shipping, the activities of the weir fishermen, the wreckage along the beaches, or the changing picture of migrating fowls were sources of unfailing interest.

He died, after a heavy day's operating, in sleep, July 30, 1912.

EDWARD PEIRSON RICHARDSON, M.D

Book Reviews.

Radium Therapy in Cancer. By HENRY H. JANEWAY, M.D. New York: Paul B. Hoeber. 1917.

An accurate and detailed description of the methods of applying radium to malignant tumors, at the Memorial Hospital, New York, is presented in this volume, "Radium Therapy in Cancer." The various forms of cancer,—the indications, methods, complications, and results,—are considered separately, for the disease in each organ must be treated as a separate problem. The use of radium emanation in increasing the efficiency of radium therapy, the principles of application and filtration, with an explanation of the physical considerations relative to the therapeutic application of radium, are described. A summary of many cases treated shows that radium, as a palliative agent in

advanced cancer, has afforded only a limited usefulness; applied over the surface of the body at a distance, however, it has been found to cause retrogression of many tumors and relief from pain. As a preliminary measure before operation, it is useful in controlling the activity of growth. It must be admitted that in many cases the temporary benefit derived from the use of radium has resulted in a later progressive extension of the disease. In treatment of the more circumscribed growths of the mucous membranes, radium performs perhaps its best service, and often a complete clinical retrogression may be obtained without the loss of a portion of the organ in which the cancer is growing. Although in many cases the cure has not been permanent, it is felt by those responsible for the work done at the Memorial Hospital that the character of the retrogressions has been so good that every opportunity should be taken to discover how far radium can be relied upon to cure primary early cancer.

Handbook of Suggestive Therapeutics, Applied Hypnotism and Psychic Science. By HENRY S. MUNRO, M.D. St. Louis: C. V. Mosby Company. 1917.

This book is in no sense a treatise on psychoneuroses, but a clear and interesting account of the author's method of using hypnotism in general practice, and the use of indirect suggestion by the physician in his handling of patients and their troubles. The author gives a good account of his method of hypnotization and of the mode of action of this means, but perhaps the best and most interesting part of the book consists of the chapters on the more general relations of the physician with the patient and the community, such as the ones on personality, environment, moral stamina, and self mastery, which show the marks of a man alike to the wider relations of medicine to society, and give evidence of thoughtful consideration of these relations.

The account of psychoanalysis and of the Freudian theories, while hardly as full as we might like to have them, gives the general outlines fairly well and points out some of the most serious objections to the use of the method of psychoanalysis as a therapeutic measure. Most men of experience will agree with the writer that suggestion plays a large part in the success of this method when it is successful.

Wishfulfillment and Symbolism in Fairy Tales.

By DR. FRANZ RICKLIN. Translated by DR. WILLIAM A. WHITE. New York: Nervous and Mental Disease Publishing Company. 1915. Nervous and Mental Disease Monograph No. 21.

This series of monographs has made accessible to American physicians many valuable books both by our own writers and those of other countries. The present volume is one which is exceedingly interesting and even entertaining. It is concerned with the application of the well known Freudian symbolism and method of psychological analysis to fairy tales. The writer's main point may be briefly expressed from his statement that in mythology the construction of symbols comes about in a different manner from that seen in psychopathology, first through personification, and then a new factor is added to the symbol, which displays some power or effect, and this is then transferred to the symbol.

Even if one is not ready to accept the full claims of the followers of Freud to have founded a new and well nigh universal system of psychology, nevertheless the reader of this book cannot help gaining from it a new point of view and insight into processes of thought as shown in folk tales.

Blood Pictures. By CECIL PRICE-JONES, M.D. New York: William Wood and Co. 1917.

This volume is an introduction to clinical hematology. It is a guide for the interpretation of reports on blood examinations and is of value to practitioners in making diagnosis. Part I deals with the collection and examination of material. The blood examination is explained; the collection of samples of blood, the enumeration of red and white cells by means of Barker's hemocytometer, the estimation of the hemoglobin percentage, film preparations, and the examination of stained films. Blood cells, abnormal red cells, white cells,—lymphoid and leucoid,—and abnormal white cells, are described. Examples are given of various types of blood pictures, both normal and incomplete.

Part II. shows the value of blood pictures in the diagnosis of disease, such as bacterial infections, protozoal infections, blood diseases and malignant disease. The appendices deal with staining methods, the measurement of the size of red cells, and the phylogenetic diagram of blood cells.

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AMERICAN RESEARCH ON TRENCH FEVER.*

WHEN the first meeting of the Medical Research Committee of the American Red Cross was held in October, 1917, it was recommended by Major Richard P. Strong that an investigation of the prevalence of trench fever and the importance of attempting to discover the method of transmission of this disease, be conducted. This recommendation was made as a result of several months' study of the problems relating to the prevention of infectious diseases occurring in the Allied armies on the Western Front. Since it was admitted that a loss of man-power was already occurring in these armies and likely to increase in other armies from the transmission of this disease it was requested that a statement regarding the committee's knowledge of trench fever be sub-

mitted at the next meeting. In November, 1917, therefore, it was voted that such investigation should be undertaken and a committee consisting of Majors Cushing, Swift and Strong was appointed. Major McNee, R.A.M.C., was subsequently asked to become an honorary member of this committee.

We now have the full report of the investigations pursued and the conclusions reached by those men and their colleagues. The report has been fittingly dedicated to the "members of the Medical Staffs of the Allied Armies who have done so much during this war for the relief of human suffering." Up to this time trench fever had been prevalent for three years; but partly on account of the lack of medical officers, and partly on account of the difficulty of securing volunteers necessary for study, no extensive investigations had been made. Thus it became the privilege of the Medical Research Committee of the American Red Cross and of certain members of the American Expeditionary Forces to organize and carry out these exceedingly important experiments. The necessity for the work having been established beyond doubt, the next step was the problem of obtaining volunteers for experiment and the funds for the purchase of hospital equipment. In January the hospital was ready and sixty of the total eighty-two volunteers were ready for submission to the infection.

Too great praise cannot be given to these men who offered themselves as subjects willing to endure pain and sacrifice to relieve their fellow men. The men, the report emphasizes, were all healthy and robust at the time the experiment was tried. Though the actual risk, as far as life and death are concerned, has not been as great as that of the men who, under Reed in Cuba, contributed during the Spanish War so much to the discovery of the method of transmission of yellow fever, nevertheless the spirit of unselfishness and coöperation among these volunteers of the American Expeditionary Forces went far towards contributing to the success and accuracy of the experiments. To the honor of the Medical Corps of the American Army it may be told that it is probably the first time in history that an infectious disease has been studied in such a thorough manner. The disease has been produced by different methods in sixty-two instances.

The most important facts demonstrated by the work of the Research Committee are that trench

* Report of Commission, Medical Research Committee, American Red Cross. Prepared for publication by Richard P. Strong, Oxford University Press, Frederick Hall, 1918.

fever is a specific infectious disease, not a modified form of typhoid fever or of paratyphoid fever and the disease is transmitted naturally by the louse. Much that is interesting concerning the views and work of previous investigators in their attempts to differentiate this infection from other infections is discussed in Chapter III. of the Report. Chapters I. and II. give a brief idea of the organization and planning of the research and the symptoms and course of the disease. Chapters III., IV., V. and VI. deal respectively with the specific value of trench fever; the occurrence and nature of the virus of trench fever; its etiology; and the method of transmission of trench fever. In each of these four chapters previous views and investigations are carefully compared with the present investigations of the commission. The remaining chapters give details of the blood-transmission experiments and conclusions reached from them; of the bacteriological study of blood, feces, and urine in trench fever cases and of the volunteers employed before infection; of the agglutination reactions for organisms of the enteric group in spontaneous and experimentally produced trench fever; of the first group of transmission experiments with *pediculus humanus, linn.*, and the conclusions reached from them; of the second group of transmission experiments with *pediculus humanus, linn.*, and the conclusions reached from them; of the experiments regarding the filterability and thermal death-point of the virus and the infectivity of the excreta in trench fever; clinical investigations regarding the experimentally produced cases of trench fever, and clinical histories and temperature charts.

The report is replete with references from medical and surgical journals and a great many plates, showing the methods of infecting the lice and the volunteer subjects with the virus, aid in making the descriptions clear. The eighty complete case histories are each accompanied by the clinical chart, and various other charts are shown illustrating the different types of fever which developed as a result of different methods of inoculation. Tables illustrating the blood-transmission experiments, agglutination charts and tables, and tables illustrating groups one and two of the louse-transmission experiments are printed in full.

The fact that trench fever was unknown to the medical profession before the present war

and that it stands second on the list of diseases causing wasting from the fighting line prove that the results of the work of the Medical Research Committee of the American Red Cross, in discovering the cause and transmission of the virus, have contributed most materially to the progress of preventive medicine.

STANDARDS OF THE DEPARTMENT OF HEALTH AND SANITATION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

A BULLETIN recently issued by the United States Shipping Board Emergency Fleet Corporation describes the standards of the Department of Health and Sanitation. This corporation has undertaken a tremendous industrial task, which could not be accomplished efficiently except under hygienic and sanitary conditions most considerate of the health and vitality of the working force.

Many employers have found it advisable to determine the condition of health of a worker at the time he enters the employ of the company and at intervals afterwards. This procedure benefits both the employer and the workman. Physical examinations properly carried out will bring to the attention of the examining physician any communicable disease with which the applicant might be afflicted and which might be communicated to his fellow-workmen. Applicants for employment suffering from minor ailments or condition of ill health should not necessarily be excluded from employment, but should be given work for which they are best suited.

Shipyard managers are requested to conform to the regulations of the local and State health authorities in the control of communicable disease by allowing no employee to return to his work after an illness until the danger of conveying infection has passed. In the control of venereal disease, active assistance will be given to any shipyard management desiring it. Vaccination for smallpox is compulsory and for typhoid and paratyphoid optional. Minor ailments, cuts, and scratches should be given immediate medical treatment. For the surgical treatment of wounds the use of dichloramine-T and chlorococaine is recommended.

The following staff is considered the minimum requirement for the proper treatment and care of employees in the shipyard plants:

Plants employing under one thousand men should have a first-aid attendant or trained nurse for each shift and two doctors on call. The first-aid attendant should have taken a regular course in first aid. In plants employing over one thousand men, a resident physician should be employed and should be furnished with such assistance as the size of the plant and work to be done demand. In plants where a dispensary is required it is desirable to have a physician resident in the dispensary. Plant physicians must have a license to practise medicine in the State in which the plant is located. First-aid treatments may be rendered by nurses or attendants. All redressings should be overseen by a licensed physician and first-aid treatment should be supervised whenever possible.

Three types of facilities for the treatment of injuries and illness at shipyards are discussed in this bulletin: (1) The first-aid station; (2) a dispensary, and (3) a plant hospital. The first-aid station is the unit recommended for plants employing up to one thousand men. In no case should first-aid treatment be given in the yard office. A specially assigned room should always be provided for the first-aid treatment. A dispensary is necessary for plants employing from 1,000 to 2,500 men. A first-aid station, located at a convenient point within the grounds, should supplement the dispensary for each 2,500 men employed. The need of a plant hospital depends largely upon available hospital facilities in the vicinity. A plant employing a relatively small number of men, and in a situation remote from adequate hospital facilities, would be much more dependent upon its own resources than a plant employing many more men, but with nearby hospital facilities immediately available. With this consideration in mind, each plant should make adequate provision for the hospital care of its injured employees.

In regard to sanitary problems, restaurants and lunch rooms, and the question of housing, the standards described in this bulletin are the highest. The first consideration is the health and comfort of the employees, thereby increasing the industrial efficiency of the entire shipyard organization.

STATE REGULATION OF THE PRACTICE OF MEDICINE.

THE American Medical Association has issued recently a pamphlet entitled, "State Regulation of the Practice of Medicine," by Frederick R. Green, A.M., M.D. The author reviews the problem of medical legislation, and gives reasons why the function of regular medical practice should be transferred from legal to public educational authorities. In spite of the efforts of the medical profession to enact laws for the welfare of the public, it has not been able to maintain its standards, for almost every cult, however unscientific and absurd, has found, after sufficient effort, legal support for its practice.

This pamphlet gives a brief survey of the history of efforts to restrict to certain individuals the power of treating the sick. Medical legislation has been restrictive in this country, and may be divided into four epochs. In colonial days the practice of medicine was in general unrestricted. Beginning in the 19th century, the public left examining and licensing to members of the medical profession. In the third period, from 1840-1852, former legislation was repealed, partly because of the growth of sectarianism. The fourth period, beginning in 1870, is characterized by the development of modern medicine, surgery and bacteriology. Professional competition increased, and the need of professional standards was emphasized. The State was given the power of examining and licensing. This involved many decisions by the courts, which were often influenced by sectarian prejudices. This step has led to the establishment of legal principles, which, whether acceptable or not to the medical profession, are final and irrevocable.

The attitude of the medical profession is shown by the fact that only about ten per cent. of physicians take interest enough in this legislation to give it active support. Protection of the public against incompetent practitioners is a public function, and the burden and expense of securing this protection should not be left to the medical profession. The attitude of the public has been a disinterested one, because it has thought, quite unfairly, that medical practice acts were enforced in the interest of physicians rather than for the sake of the people. The responsibility of restricting treatment of the sick should be left to those whom it con-

cerns most vitally. The public, acting through the educational authorities of the State, should establish one standard for all in regulating medical practice acts for its own protection. Tennessee, Kansas and Illinois have already taken steps in this direction. These efforts promise for the future a solution of this problem and a readjusting of responsibility, which will create a better understanding between the medical profession and the public.

MEDICAL NOTES.

SANITATION OF RURAL WORKMEN'S AREAS.—A recent issue of the United States Public Health Report contains a valuable report on the sanitation of rural workmen's areas, with special reference to housing. The information contained in this report is essentially practical and is particularly useful as a guide for men engaged in welfare supervision. War conditions have made the housing of workmen a difficult one, for industries have been enlarged suddenly and have made the rapid establishment of industrial plants and residence areas a necessity.

Various aspects of the problem are considered in this report. The selection and preparation of village and camp sites, the laying out of streets, and methods of protecting the water supply from pollution are discussed in detail. In housing wage earners in labor camps, portable houses, of wood, metal or asbestos material, have been found more satisfactory than tents, railway cars and other types of housing. The advantages and cost of various materials and types of construction are considered in detail. Methods of securing sanitary conditions of ventilation, temperature, lighting, house drainage and plumbing, and the control of vermin are explained. Useful diagrams, plans, and photographs are included.

The advisability of adopting local sanitary legislation in establishing new residence areas is suggested in this report. The full-time services of health officers and the strengthening of existing public health organizations are necessary in coping with the present conditions, arising from the unusual industrial activity caused by the war.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physi-

cians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about two hundred and fifty dollars, will be made on July 14, 1919, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1919.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

No Alvarenga prize for 1918 was awarded.

FRANCIS R. PACKARD, *Secretary*,
19 South 22nd St., Philadelphia, Pa., U.S.A.

AMALGAMATION OF MEDICAL JOURNALS.—The *Medical Review of Reviews* announces that it has just purchased the third oldest medical journal in America—the *Buffalo Medical Journal*—founded seventy-four years ago by Dr. Austin Flint, and published regularly ever since.

The *Medical Review of Reviews* is to absorb the *Buffalo Medical Journal*, beginning with its January, 1919, issue. This is the third publication which the *Review* has purchased during the past few years.

The *Medical Review of Reviews* further announces that it will be greatly increased in size beginning with the January, 1919, issue, but that the subscription price is not to be increased.

WAR NOTES.

HONORARY DEGREES TO VISITING SURGEONS.—Honorary degrees were conferred on November 6 by the New York Fellows of the American College of Surgeons upon seven distinguished

surgeons from England, France and Italy. Major-General W. M. Ireland also received an honorary degree. The foreign surgeons receiving degrees were Col. Sir Thomas Miles, Col. George E. Gask and Maj. George Grey Turner, of the British Army; Lieut.-Col. Raffaele Bastianelli, of the Italian Army, and Majs. Pierre Duval and Adrian Piolet, and Dr. Henry Becklere, of the French Army.

ADVANCES IN WAR SURGERY.—Recent advances in war surgery were discussed at the College of Physicians and Surgeons on November 6, by the six distinguished surgeons of England, France and Italy who are touring the country. Lieut.-Col. Raffaele Bastianelli of the Italian Army described new methods of treating cerebral wounds, by which, he said, 52% of all patients are saved.

WAR DEPARTMENT AUTHORIZES EXPENDITURES FOR HOSPITALS.—Announcement has been received from Washington that the War Department authorized the expenditure of \$685,000 for alterations on buildings which have been secured for use as army hospitals, including the Commonwealth Armory of Boston. It is reported that this armory will be made over into a hospital containing 1,000 beds and that the War Department has authorized the construction division to begin work at once. The changes are estimated at about \$70,000.

A CALL TO ALL NURSES.—The American Red Cross has issued a special call to all nurses of New England to fill out the questionnaires that are being issued. Nursing surveys up to the present time have been very inadequate, and it is the opinion of the government that to do intelligent work we must know what our complete resources are. New England has supplied only 57% of its quota of nurses for military service. Miss Elizabeth Ross, director of nursing, New England Division of the American Red Cross has charge of this work.

RED CROSS NEEDS 9,000 MORE NURSES.—The American Red Cross will need more than 9,000 nurses in addition to those already enrolled, before January 1, according to a report made by the Red Cross War Council. More than 30,000 Red Cross nurses are already enrolled, 17,000 of whom are overseas.

COMMISSIONS IN MEDICAL RESERVE CORPS.—The following commissions were announced on October 28:

Captain: Dr. Henry Melville Chase, Boston; Dr. Arthur M. Dodge, Boston; Dr. Lowrie B. Morrison, Boston; Dr. John E. Overlander, Springfield; Dr. Victor A. Reed, Lawrence; Dr. George H. Stone, Boston; Dr. Joseph E. Brindamour, Holyoke; Dr. Dixi G. Hoyt, Leominster; Dr. Charles B. Hussey, Franklin; Dr. James Nightingale, Worcester; Dr. George H. Parker, Hanover, N. H.; Dr. Arthur H. Ring, Arlington Heights.

First Lieutenant: Dr. Ernest S. Bisbee, Boston; Dr. Raymond P. Bonelli, Brookline; Dr. Thos. E. Buckman, Boston; Dr. Franklin C. Cassidy, Medford; Dr. Joseph G. Hegerty, Boston; Dr. M. F. McMahon, Worcester; Dr. Z. A. Molica, Boston; Dr. Edward F. Regan, Framingham; Dr. Winthrop D. Stacey, Charlestown; Dr. Karl Brooks Sturgis, Fairfield, Me.; Dr. John D. Taylor, East Boston; Dr. James E. Waters, Gardner.

INVESTIGATION OF TEN THOUSAND RECRUITS WITH DOUBTFUL HEART CONDITIONS.—The second report on the examination of recruits with doubtful heart conditions has been sent out by the National Hospital for Diseases of the Heart in London. This has been published in the *British Medical Journal* of September 7, 1918. In the case of every recruit an inquiry for a history of the most frequent ailments associated with heart conditions was conducted. Rheumatic fever was present in 19.2 per cent. of the cases; scarlet fever in 21.8 per cent.; influenza in 56 per cent.; chorea in 2.6 per cent.; "rheumatism" in 16.1 per cent.; tonsillitis in 22.1 per cent., and strain in 27.1 per cent.

ARMY ANTHROPOMETRY AND MEDICAL REJECTION STATISTICS.—An analysis of army anthropometry and medical rejection statistics has been made recently by Frederick L. Hoffman, of the Prudential Insurance Company, in the interests of the Committee on Anthropometry of the National Research Council. Deficiencies in the present system of examination of recruits, both from the military and scientific standpoints, are pointed out. Examinations made by line officers who are without especial medical training have been often superficial and inaccurate. Under the selective draft, local boards and camp

surgeons have varied in their strictness in observing regulations. Medical rejection standards differ in time of peace and war.

It is to be regretted that the recruiting data furnished by the present war are collected under such varied standards and conditions that they are valuable for military purposes only and cannot be utilized for scientific research. A survey of recruiting statistics of the principal foreign countries shows a wide variation in both the medical causes of rejection and in the physical proportions of recruits. It is the purpose of this investigation to urge a more strictly scientific method of examination.

ACTIVITIES OF THE RED CROSS.—The annual meeting of the Metropolitan Red Cross Chapter was held at 142 Berkeley Street, with Allston Burr presiding. The total membership this year, ending July 1, was 339,814, a gain of 290,909 over the previous year. Nineteen branches have been added, making a total of 39 and 108 auxiliaries. The work of this year is represented in a total of 4,126,464 articles. All but 100 of the 3,000 workers each month are volunteers. More than \$41,000 has been raised by the schools. During the year the chapter received \$155,596 from membership fees, designated by Washington to be used for administrative expenses. Of this amount the chapter refunded to its branches \$48,742 for their expenses. This left \$106,853 to be used by the chapter itself. Thus it will be seen that the income from membership fees more than covers all administrative expenses.

The amount received from the chapter from the first war fund was \$504,033, in addition to which it received during the year, in donations and from the sale of materials, \$120,129 to be used for relief purposes.

The education department had 263 classes, with a total enrollment of 3,968. The Women's Volunteer Motor Detachment, from July 1, 1917, to July 1, 1918, carried a total of 4,479 patients and made 8,582 calls for the Instructive District Nursing Association and the Home Service Section.

In November, 1917, four months after the chapter workroom for surgical dressings was started, about 60,000 surgical dressings were made. In April of this year the total of 80,000 dressings a day was reached, about 2,000,000 for the month, including those for

base hospitals, evacuation hospitals and first line dressing stations.

The Comfort Kit Department, from July, 1917, through June, 1918, produced 44,080 soldiers' kits, 27,546 sailors' bags, and 8,944 miscellaneous bags. The Sales Department, during the fiscal year, sold 73,186 pounds of wool and 84,872 garments. In the Sewing Room there has been an average attendance of 233 workers, representing 6,302 days' labor in all. The total number of articles made was 38,910.

The Home Service Department, the largest in the Chapter, has had referred to it for some service, a total of 4,632 families prior to July 1, 1918.

The Bureau of Benefits and Entertainments has accepted about \$180,000. The Red Cross Lunch Room and Tea Room brought the Chapter \$12,832; the Flower Show, \$7,675; the Roosevelt Lecture, \$4,852; the Silver Thimble Fund, more than \$6,000; the Park Riding School Show, \$3,058.

VITAL STATISTICS AFFECTED BY THE WAR.—The war is continuing with the loss of about 7,000 lives a day in European countries. But this loss is not all due to the Army. For all of Europe it is estimated that the potential loss in births is ten to twelve millions. This is a serious situation. It involves a figure of nearly 2% of the total pre-war population of England and Wales, and in Ireland and Scotland it involves 1% and 1¼% respectively. Not only the fact that there are large numbers of adults lost in the camps and on the battlefields, but the absence of men has reduced the birthrate to a considerable degree. In 1917 the total number of births in England was 670,000, the lowest since 1858; but during the first half of 1918 this figure has improved.

Sir Bernard Mallet, Registrar General of England, calls to our attention some flaws in the vaunted efficiency and organization in Germany. One of the important groups of figures in such a consideration is that related to infant mortality, and here the General Powers make the least creditable showing. Statistics are available for two periods of twenty years each, 1886-1895 and 1896-1915. The relationships are best observed in the following tabular form:

INFANT MORTALITY OF EUROPEAN COUNTRIES.

COUNTRY	1896-1915	1886-1895
Norway	68	97
Sweden	74	104
Ireland	92	98
Denmark	103	136
Switzerland	108	160
England and Wales	113	148
Scotland	113	123
Netherlands	115	170
France	122	168
Belgium	139	163
Italy	144	190
Spain	156	192
Prussia	164	207
Wurtemberg	165	255
Saxony	186	281
Austria	196	246
Bavaria	204	276
Hungary	205	250

The last six places in both tables, it will be noted, are held by the Central Powers countries.

Dr. Mallet, in discussing points of view from which infant mortality may be looked at, calls attention to the fact that the low rates go with countries with considerable shore line, while the high ones are in inland divisions. Low mortality rates are associated in most instances with a low birth rate and higher mortality in the cities; but baby saving is better practised in the cities and mortality is highest in the rural sections.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 9, 1918, the number of deaths reported was 264 against 236 last year, with a rate of 17.55 against 15.93 last year. There were 36 deaths under one year of age against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 32; scarlet fever, 16; measles, 7; whooping cough, 7; tuberculosis, 39.

Included in the above were the following cases of non-residents: Diphtheria, 11; scarlet fever, 1; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 1; whooping cough, 1; tuberculosis, 17.

Included in the above were the following non-residents: Tuberculosis, 3.

MASSACHUSETTS STATE BOARD OF CHARITY.—The thirty-ninth annual report of the State Board of Charity of Massachusetts for the year ending November 30, 1917, has been issued. The general work of the Board is divided into

statistics concerning the number of patients admitted, their condition, the number of visits made and the total expenditures of each hospital and sanatorium. The report contains statistics of private charitable corporations of the State and their scope of assistance. There is also a description of the almshouses of the State, and statistics of poor relief.

PROGRESS OF INFLUENZA EPIDEMIC.—There were but eight new cases of influenza among the 21,000 sailors of Greater Boston schools and stations on November 5. The total number of cases in the Navy up to date from August 28 is 4,004. Many of the men were voluntarily vaccinated with the anti-pneumonia vaccine. The local Navy doctors who are to conduct the official investigation for the Navy Department as to the cause of influenza and how to spread it, are to use the big Naval Hospital at Bumkin Island, Hull Bay.

There are only six new cases of influenza at the First Naval District. This included the 21,000 sailors of Greater Boston and vicinity. The Army had no deaths and but one new case.

The epidemic in New York took another leap on November 8, when 614 more cases were reported than the day before, the total of new cases being 1,061. The Health Commissioner expressed the belief that the increase was due to the failure of physicians to make full reports.

Mr. Henry B. Endicott, chairman of the emergency health committee, expressed unstinted praise for those who aided in the fight against the recent grip epidemic. He pays a tribute to the State Guard and the William A. Brooks Open-Air Hospital at Corey Hill, which besides other institutions at Gloucester, Ipswich, Haverhill, Lawrence, Waltham, Barre and Springfield, the State Guard policed. He also praised Dr. Eugene H. Kelley, State Health Commissioner; Dr. William F. Draper, Federal Health Officer; Adjutant General Stevens and others, including the work of all the nurses.

MONTHLY BULLETIN OF THE HEALTH DEPARTMENT OF THE CITY OF BOSTON, AUGUST, 1918.—The statistics for 1917 in the City of Boston show a birth rate of 25.7 per cent. and a death rate of 16.47 per cent. of the total population.

The Bulletin states that there is a nation-

wide endeavor to control the spread of venereal diseases by proper propaganda in the form of literature, free dispensaries, and public instruction.

An important investigation was made by the Bureau of Entomology to discover the reasons for infestation of candy by insects. It was found that the insects are brought into the establishments in the nuts used in the candy. Another investigation on anthrax was followed up in the case of human infection where the source was found to be shaving brushes made from horse hair and introduced into abrasions of the skin in shaving. It is urged that manufacturers sterilize their brushes or where brushes are used that contain no trade mark, the buyer should sterilize his own brush before using.

The bulletin shows a total number of deaths for the month of August of 834 as against 895 in the corresponding period last year; total visits of nurses to be 5,769; a number of deaths from communicable diseases, and a large number of bacteriological examinations, food, milk and sanitary infections.

WORK OF THE NURSES DURING THE EPIDEMIC.—In recognition of the excellent work done by the New England nurses during the epidemic of Spanish influenza, the following letter has been published in the daily press:

"As the division director of nursing for the Red Cross of New England, I should like to state how much the Red Cross appreciated the splendid response of the nurses in this district to the call during the epidemic.

"Four hundred graduate nurses went into the emergency service through this office. Some into the military, some to the local hospitals, some to help with the district work, and others to the stricken cities and towns all over New England.

"The military nurses serving abroad could give no better service than did these women who took their lives in their hands and cared for the stricken people of this community.

"We have lost a number of nurses. At present we do not know how many, but we know that it is quite a large per cent. This was unavoidable, as the nurses were all of necessity overworked, and were unable to take care of themselves while on duty.

"The Red Cross also owes a great debt of gratitude to the women who came to the front

to assist the nurses. Hundreds of women all over New England, those who had taken the home nursing courses and others who had no training volunteered, and did splendid work wherever they were sent.

"We feel that every nurse that died in this service should have a gold star placed in the service flag, for she certainly died in the service for her country.

ELIZABETH ROSS,
Director Bureau of Nursing, N. E. Division,
American Red Cross."

NEW ENGLAND NOTES.

BOARD OF HEALTH OF PORTLAND, MAINE.—The report contains a list and definition of a number of important public health rules pertaining to the care of milk, the proper use of barber shops, and other sanitary measures instituted by the Board of Health for the safeguard of the public health. The total death rate is 15.45 per cent. and the total birth rate is 21.69 per cent. There were 58 cases of typhoid fever, a decrease in the total from the year 1916. The efficiency of the Health Department has been greatly improved by the appointment of a city bacteriologist. The report on the prevalence of tuberculosis for the years 1909 to 1917 shows a gradual decrease, amounting to 57 deaths per 100,000 population as compared with 77 in 1909. Great activity is displayed in the inspection of meat and produce, and milk, and subsequent fines and penalties have been imposed. It is the aim of the City of Portland to save this tremendous waste in human life by getting at the foundation of the causes of physical disability.

NEWPORT HEALTH REPORT.—The annual report of the Board of Health of Newport, R. I., for 1917, shows a high standard of health and sanitary conditions. In order to cope with the city's sanitary problems, which have increased because of the establishment of military cantonments and naval stations, the State Board of Health requests the United States Public Health Service for the services of a medical officer during the continuance of the war. To safeguard the public from the sale of contaminated milk, a Citizens' Milk Commission was appointed to inspect milk and regulate its distribution. A census was taken of wells and cisterns. In March, appropriation was made for the purchase of a light ambu-

lance for transporting contagious cases; since that date, 395 cases have been transported. The medical inspection of schools has been carried on effectively by four physicians, and the work in the bacteriology laboratory has been extended. The report includes vital statistics and mortuary tables and reports of contagious diseases.

Obituary.

EDWARD BRADFORD CRAGIN, M.D.

DR. EDWARD BRADFORD CRAGIN, who was for many years a leading New York physician, died recently of pneumonia. Dr. Cragin was prominent as an obstetrician and gynecologist in New York City and for more than fifteen years was Professor in the College of Physicians and Surgeons at Columbia University.

He was born in Colchester, Conn., the son of Edwin T. Cragin and Ardelia E. Sparrow. In 1882 he was graduated from Yale University and in 1886 from the College of Physicians and Surgeons. In 1895 he became secretary of the College of Physicians and Surgeons and continued in that office for four years when he became a professor in his specialties.

Among the many institutions for which he was attending or consulting gynecologist were the Sloane Hospital for Women, the City Maternity, Presbyterian, Roosevelt, Lincoln, Italian, New York Nursery and Child's Hospitals.

He was 59 years of age and had practised medicine since 1886. A wife, two daughters and a son survive him.

Miscellany.

GOVERNMENT DRUG ORDERS.

REPORTS last spring stated that at that time all other developments in the drug and chemical trade had been overshadowed by the huge wholesale orders of the United States Government for all sorts of pharmaceutical preparations. One of the largest contracts was for 17,500,000 tablets of quinine sulphate at \$5.73 per thousand. Each tablet contains 200 milligrams.

The Government's total quinine order calls for 20,000,000 three-grain tablets, which will

require in all 125,000 ounces of quinine, or 7812 pounds, equal to more than four tons.

In addition to the above, contracts awarded by the Government include 300,000 tubes of morphine sulphate, 60,000 tubes of cocaine hydrochloride and 400,000 324-mgm. tablets salicylic acid. The awards will keep manufacturers busy for over a year.

The drug and chemical trade has manifested the deepest concern over the action of the War Trade Board in restricting importations of many nonessential products and also in its prediction that still further restrictions are about to be imposed. This has compelled consumers in various lines to run to cover wherever possible.

On the whole the market has been subjected to a greater number of advances than declines. Far Eastern drug products, such as camphor and menthol, botanical drug products, spice products, gum aloes, rhubarb root, licorice root, shellac and sandalwood oil and eucalyptus, all have been subjected to numerous upward price revisions of more or less importance. A good number of South American products also have participated in the general advances in the market. Increases of a substantial character having occurred in the price of all grades of carnauba wax and canary seed. Products of the Mediterranean are very firm, although there has been a noteworthy cut in gum opium, the most important item in the latter category.

The rapid ascent of camphor has been the outstanding feature of the general market, outside of the orders placed by the Government. A net jump of 13 cents additional has been named by domestic refiners during the interval of a month, establishing the market on the bulk basis of \$1.11½ a pound. The Japanese syndicate in control of camphor has put up the price of the crude to levels corresponding with the current quotations for the refined, and it is now freely admitted that supplies are not now available in sufficient quantities to cover all the requirements of the consuming trade.

In the endeavor to conserve tonnage for a successful prosecution of the war numerous important drug and chemical products were entirely prohibited from entrance into the coun-

try. This list included such important products as pyrites, all acids, citrate of lime, muriate of ammonia, coal tar distillates, fusel oil, salts of soda, excepting cyanide and nitrate of soda, sumac, sulphur, olive oil, perfumery, cosmetics and toilet preparations.

The greatest reflection in the New York market as the result of the prohibition of further imports of the products enumerated was in the precipitate upward movement in prices for citric acid, which became nothing short of sensational. The manufacturers of this product in consequence of the unsatisfactory outlook over future importations of citrate of lime raised their spot quotations 7 cents a pound establishing the market on the basis of 82½ cents a pound for the crystals. This advance was followed by a rise in the second hand quotations for the acid to a level of 95 cents and \$1.00 a pound. In addition to the rise in the domestic it was reported the cost of bringing in the foreign has risen to a level of 86 cents cost and freight. The various citrates were raised from 2 to 23 cents a pound in sympathy with the upswing in citric acid, making the revised quotations for iron citrate \$1.00; iron and ammonia citrate, 90 cents; iron phosphate, 90 cents; iron pyro phosphate, 95 cents; potash citrate, \$1.70; and sodium citrate, 85 cents.

The various tartrates also have been subjected to sharp upward revisions, owing to further strictures on the importations of argols from France and Italy. A net advance amounting to 2 cents a pound was named on cream of tartar to a basis of 56½ cents a pound for the powdered and 57 cents for the crystals.

The cut of close to 33½ per cent. in the quotations for wood alcohol furnished one of the sensations of the drug and chemical trade since our entrance into the world war. Official quotations are those permitted under Government control, and make for a reduction of 47 cents in the 95 per cent. to a basis of 90½ and 91 cents a gallon, and 93 1-2 and 94 cents for the 97 per cent. The pure grades, or Columbian methanol, are held at 97½ and 98 cents a gallon, while methyl acetone is held at 97½ and 98 cents a gallon. The drastic cut in prices comes as the result of the Government's commandeering of all production of wood alcohol and by-products in the endeavor

to secure supplies of methyl acetone to be utilized in aeroplane construction.

Bismuth metallic was raised to \$3.50 on a contraction in shipments from Bolivia. This advance was followed by a jump in all bismuth preparations, sub-nitrate being 25 cents higher at \$3.25; sub-gallate 25 cents higher at \$3.50; sub-iodide 30 cents higher at \$5.35; sub-carbonate 25 cents higher at \$3.50; and axychloride 25 cents higher at \$3.55.

The quicksilver market has been steady, despite the fact that the Government has requisitioned 40 per cent. of the total output of the mines in California at a price of \$105 a flask. The remaining 60 per cent. of the output carries no restrictions and agents for producers have been maintaining their asking quotations on the level of \$125. Another source of drain on the available supplies of quicksilver is the constantly increasing demand for the mercurial preparations. One contract for 20,000 worth of mercuric acid was awarded by the Navy Department.

Progress in the domestic manufacture of some of the blood medicines formerly monopolized by Germany has resulted in the naming of lower prices on salvarsan. The present quotation is \$2.75 per ampule, which contrasts with a quotation of \$14.00 @ \$15.00 per ampule, which was the price named for some of the goods which were brought over on the Deutschland on her eventful passage to this country. A contract for 18,000 ampules of salvarsan was awarded by the United States Government, but a small quantity over and above the requirements of the Government was offered by the manufacturers to hospitals and physicians at 2.75. The amount so available is limited, however, and the makers are forced to pro-rate six ampules among as many physicians where it was formerly customary to furnish each physician with six ampules.

Foreign botanical drug products have all been featured by firm prices. Advances have been scored throughout the list with gum aloes, uva ursi leaves and other foreign botanicals showing the greatest proportion of advance. The essential oil line also has been firm throughout, the principal advances having been in cassias, sassafras and geranium oils."

CLASSES FOR RECONSTRUCTION AIDES.

BOSTON has been honored by Surgeon-General Gorgas through his request that classes be established here for the purpose of training women to become applicants as reconstruction aides in military hospitals. Machinery has already been set in motion, and registration started at the Franklin Union for a full time intensive day course of twelve weeks, which is to be given at once, thus establishing the Boston School of Occupational Therapy.

"Authorities in Washington have been watching with keen interest the so-called reconstruction work in England, France and Canada. They believe that three kinds of curative agencies are absolutely essential to restore damaged faculties and reestablish muscular coördination. The medical purposes to meet this need are to provide interesting occupations, a variety of muscular actions and the reestablishment of mental powers, and it is planned to organize these three separate headings—bedside handicraft, which will lead toward an awakened interest in life; curative hospital workshops with a variety of implements which will help men to regain what the doctors call their civilian morale, and vocational reconstruction, which may be accomplished outside the hospital in institutions already equipped with the necessary facilities. All these branches of remedial work are closely related, but it is with the first that Boston people will be particularly interested, since it is occupational therapy which is to be taught here.

"In studying the history of that restless period following the Civil War, physicians, educators and all thoughtful men have noted what the state of mind of thousands meant to the Nation, the State and the home at that time. Returned soldiers could no longer find interest in the work which formerly meant a good living and contentment. Their nerve centers were shattered by the experiences they had undergone and the reconstruction was far from thorough as there was no specific study of the situation, even by the most advanced thinkers of those days. The present war has worked still greater havoc through the use of high explosives and constant cannonading which have brought about a new disease described as shell shock. Men thus afflicted, even with no actual bodily injury, must be restored through some curative agency. Moreover, there are numberless cases where, as

the result of surgical operations, there is likelihood of permanent suffering unless carefully superintended physical manipulations are given.

"The proposed plan of this school offers to women a field of usefulness which many will doubtless welcome, since there is no age limit. It is such distinctly patriotic service that it will appeal to many who have felt that their influence and help counted for little. It will be readily seen that only those of the finest type can be accepted for teaching these bedside occupations which, simple as they are, may mean life or death to the patients.

"The purpose of the school is to furnish in the shortest possible time the necessary training to women who wish to become qualified for such work and to receive the appointments as reconstruction aides in military hospitals.

"The training is designed to develop not only artistic and mechanical skill and dexterity, but also ability to coöperate with every branch of a hospital in order that there may result the highest standard of efficiency in the rehabilitation to civil life of the returning soldiers.

"Applicants must be at least twenty-five years of age; citizens of the United States or of Allied countries; must possess suitable personality (this requirement is regarded as of great importance); must demonstrate some artistic or mechanical skill or training that will especially prepare them to excel in one or more of the major subjects of the course, and must be prepared to accept assignments—if appointed—for full-time service during the present war emergency, either at home or abroad. The directors of the school reserve the right to refuse admission to any applicant, or to grant admission only upon probation.

"While no definite statement can be made regarding scholarships, it is hoped that any applicant who is thoroughly qualified will not be denied admission because of embarrassment concerning tuition fees. Any applicant, therefore, who finds the tuition a decided hardship is urged to write at once to the directors. The teachers in charge of the various courses will be experts in their respective subjects and there will be expected of all pupils a high degree of excellence in all the work.

"An outline of courses is as follows: Weaving, to include hand loom, bead loom, and simple rug and mat making, simple woodwork, whittling and carving, confined to the use of a few instruments, such as the knife, chisel and gouge;

basketry, to include reed and, possibly, pine needle work; block printing, applied to paper and textiles; knitting, crocheting, needle and bead work; applied design, including the elementary principles of design bearing on the subjects taught in the course. Actual practice in teaching the required subjects in hospitals under conditions similar to those which will be met in military hospitals, will give the self-confidence and experience necessary for military hospital work.

"Certificates of graduation will be granted to all students successfully completing the course. Graduates will receive also letters of recommendation concerning their ability and personality. The school, of course, even though authorized by the War Department, cannot guarantee appointments upon graduation. It can merely state that there appears to be an urgent need for everyone who can make herself competent.

"The reconstruction aides, if appointed for service within the United States, will be paid fifty dollars per month, and sixty dollars per month for service without the limits of the United States; and if not living at a hospital, they will draw twelve dollars per month for quarters and at least one dollar a day for subsistence. They will be uniformed in the hospital and on the street, and the expense of these uniforms will have to be borne by the aides.

"It is too soon to announce the personnel of this important movement in Boston except to state that Arthur L. Williston, principal of Wentworth Institute, Walter B. Russell, head of the Franklin Union, and the public school authorities are coöperating with an advisory board made up of orthopedic and nerve specialists, and a group of women whose interest in handicraft makes them particularly desirable for such a task. There is to be a woman dean at the Franklin Union and any further information regarding the school and what it offers may be obtained there."

Correspondence.

NORMAL SALT SOLUTION.

Boston, November 8, 1918.

Mr. Editor:—

Having had a good deal of experience in preparing normal salt solution and re-agents for use in the chemical laboratory, I take the liberty of calling the attention of the readers of the JOURNAL to the fact that there is a wrong idea prevailing in some quarters to the effect that "about 900 grains of common salt

dissolved in a quart of distilled water" will give a satisfactory normal salt solution.

Unfortunately the avoirdupois method of weights and measures is so notoriously deficient in scientific accuracy in the preparation of standard and normal solutions and of re-agents used in laboratories in chemical analysis. It seems to me, therefore, that for the sake of precision and for the benefit of the patient we should in all cases use the metric system of weights and measures. But before going further in the descriptions of the mechanical technic, we must have a clear idea of what a normal solution of any salt is, and then form on the definition thus given a working formula which will be a guide to any man desirous of preparing a normal solution for use in his own practice or for general clinical and chemical uses.

What is a normal solution? A normal solution is one that contains in 1000 cubic centimeters of distilled water as many grams of dissolved substance (NaCl, for instance) as are indicated by its molecular equivalent. A normal solution of potassium hydrate (KOH) contains as many grams to the liter (1000 c.c.) as the number of its molecular weight—56.1 grams to the liter of H₂O. That of sodium chloride is 58.36 grams of the salt dissolved in a liter of distilled water. The principle involved is just the same in the preparation of all normal solutions.

But practically the only normal solution that interests the general practitioner is that of sodium chloride. Some care in its preparation and preservation is necessary. The salt used must be chemically pure and the water distilled. After the process of dissolving is gone through, the solution must be filtered and the filtrate brought up to 1000 c.c. with distilled water. Then it should be kept in glass bottles the mouths of which have been plugged with cotton, the upper part of which has been singed. These precautions are absolutely necessary in a surgical clinic where the normal solution may any moment be used for intravenous injection or in hypodermoclysis.

Now, if a man wants to use grains instead of grams in the weighing of salt, he can do so by simply multiplying the molecular weight of NaCl (58.36) with the number of grains in a gram, that is, 15.5. The result will be approximately 904½ grains. This should be dissolved in 1000 c.c. of distilled water, but never in a quart. A quart, in popular parlance, is a very indefinite quantity. It may mean anything anywhere from 28 to 35 fluid ounces.

H. S. JELALIAN, M.D.

SOCIETY NOTICE.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The fifteenth annual meeting of the Boston Association for the Relief and Control of Tuberculosis will be held at 3 Joy Street, Boston, on Thursday, November 21, at 3.30 P.M. Reports will be given by Arthur K. Stone, M.D., President; and Ethel M. Spofford, Assistant Secretary. Addresses will be delivered by Eugene R. Kelley, M.D., Commissioner of Health, State of Massachusetts; and by William C. Woodward, M.D., Commissioner of Health, City of Boston.

RECENT DEATH.

EDWARD EVERETT HAMBLÉN, M.D., died at his home in Bedford, Nov. 9, 1918, aged 53 years. He was a native of Windham, Me., and had been town physician and school physician. He had graduated from the Tufts College Medical School in 1898. He is survived by his widow, who was Miss Mary Pittman. Dr. Hamblén joined the Massachusetts Medical Society in 1912.

The Boston Medical and Surgical Journal

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AN ATTEMPT TO PREVENT INFLUENZA AT HARVARD COLLEGE.

BY GEORGE R. MINOT, M.D., BOSTON.

Assistant Professor of Medicine, Harvard Medical School,

AND

ROBERT F. LOEB, BOSTON.

HARVARD COLLEGE, at Cambridge, Massachusetts, opened on September 23, 1918, at which time the influenza epidemic in this vicinity was increasing. During the first week of college no essential measures were taken toward prevention of the spread of the disease in the college community, nor in other communities in that vicinity, though the disease continued to increase. However, on September 29, it was thought distinctly wise to try isolation and quarantine measures, and these were begun and carried out on the following day, with the help of picked medical students. The purpose of this communication is simply to give an outline of the methods employed and the results of careful supervision and quarantine of a group of about 1,450 men after a considerable number of influenza cases had occurred among them. Some of the men at first lived in col-

lege dormitories, and others at home or in boarding-houses; later, essentially all lived in college dormitories. It was possible to arrange for the methods employed because most of the men were organized into companies, as many were candidates for the Students' Army Training Corps, and were thus somewhat under military control, becoming actually under military control, as soon as they were inducted, which occurred between October 10 and 30. It was possible to conduct the isolation and inspection methods because of the coöperation between the military and college authorities.

This group of 1,450 men represents essentially all the men that were members of the Student Army Training Corps or simply of Harvard College on October 19. It does not take into account other members of the University or naval units, with whom these 1,450 men practically did not come in contact. During the first two weeks in college, some 200 or more other men were in Cambridge, temporarily associated with the Student Army Training Corps, and who, while in Cambridge, were under supervision similar to that given the group of 1,450. Many of these men were rapidly sent to officers' training camps, and it was not possible to obtain information about them. It is felt, however, that if these men had been included in the statistics given, it would have

caused the per cent. figures given to be lower rather than higher, as no man was sent away who was ill or very recently had been ill.

Four days before the detailed supervision of the students' health was started, the physical examinations for candidates for the Student Army Training Corps were begun. This gave an opportunity to inspect some of the students each day prior to their daily careful supervision to be described later. Every man's temperature was taken before he entered the rooms where the physical examinations were conducted, and he was questioned in regard to his health. At least ten in each one hundred men were found to have some significant temperature, often associated with some slight symptoms,—usually a coryza,—and at least two in a hundred appeared to be early cases of influenza. At this time the men were advised what course to pursue, none being allowed to have their physical examination on that day. The same precautions were observed at the physical examinations throughout the days they were continued; but after the detailed medical supervision of the companies, rarely was there found any individual with a temperature. The number of infections found at the time that the first physical examinations were made was among the reasons that led to the isolation, quarantine and inspection of the students.

Before describing the more detailed arrangements for the management of these 1,450 men, it is necessary to describe their living conditions as arranged for and changed according to circumstances.

At the opening of college, only about 50% of the men were assigned to live in college dormitories. More were not assigned on account of a lack of supplies; these became available about September 30. It was at this time considered desirable to have no possible overcrowding, and to allow as little mingling of the men who had been living outside with those living inside the dormitories: so that at this time, no additional men were assigned quarters. The men living outside the dormitories, however, reported each day for duty with their companies, and remained with them during the day,—from after breakfast to before supper, under the same conditions as those living in dormitories,—who had essentially all their meals in the dormitories, except for a few who, during the first twelve days of college, had to eat in other places, and not under college su-

pervision. The men who lived outside the dormitories in many instances lived at home, often within a five-mile radius of the college; some lived considerably farther away; others lived in boarding-houses in or near Cambridge. Thus many of this group of men had to go to and from college each day by public conveyances, and came in contact with individuals outside of the college.

On October 7, as the medical organization had matured, and as the cases of influenza had not materially increased, it was deemed wise to proceed in a special way with the assigning of men to quarters, because most of the cases of influenza had developed in the outside group of men. This also allowed the students to be under better control and to be inducted into the Student Army Training Corps. However, before assigning to quarters the men who had lived "at home," it was arranged that they should eat and sleep in a special quarantine dormitory for three full days. Thus 500 of these men, on October 7, were brought into a separate quarantine dormitory with its own dining-room, and 180 more men came to the same building October 10 for three days. Before they entered the building, the temperatures of all the men were taken, and they were inspected and questioned regarding their health. Suspects or those known to have been directly exposed to the disease were put in separate rooms in an isolation ward, which was in a separate building from the quarantine dormitory. This isolation ward will be described later. After sleeping and eating and having been carefully observed for three days apart from the other men, these men were re-inspected, and if apparently healthy, were assigned quarters in their company dormitory. Even with this further assignment of men to quarters, there was no over-crowding. It is to be understood that the men were not put in ordinary one-room barracks. Either a man lived in a single dormitory bedroom alone, or two men lived in a dormitory study of about 12x16 feet. Thus not more than three men slept in the same closed apartment.

Besides the provision for isolation in quarters with no over-crowding in them or in the dining-halls, the following plans were carried out as well as possible:

The students were at first requested, and on October 7 ordered, to remain inside of certain boundaries in Cambridge, outside of public

places, shops, street cars, etc., unless they received a pass from the medical officer. The men who at first were living "at home" could not, of course, follow all of this schedule, and thus, as previously mentioned, in many instances they came in contact with the outside public. This seems of importance when one considers the per cent. figures of the cases of influenza occurring among them compared with those in quarters. It is also to be noted that circumstances prevented rigid quarantine before October 7, though quarantine measures were begun September 30, and were fairly well carried out during that week. Quarantine was continued until October 26.

All lectures or classes of over fifty men were stopped between September 30 and October 21. Military drill, however, was continued daily.

All officers of the college and Student Army Training Corps were ordered to report by name any individuals coughing or sneezing or appearing sick, and such cases were followed up.

The men who made the supervision of the students' health possible, and enabled them to be cared for and diagnosed early, were thirteen picked fourth-year medical students of the Harvard Medical School, one of whom acted as "captain" of the group. Nine men were made company "doctors" and one was assigned to each of the nine companies. One other student was put in charge of the isolation ward, and two others helped the medical adviser, Dr. Bailey, with the medical care of the sick cases in the college infirmary and in his office. These men continued their work from September 30 to October 19.

The company "doctors" held a sick call each morning, not only asking for men not feeling well, but inspecting men and using the thermometer freely. The men picked out of line were examined carefully later, and each "doctor" sent cases with any infection, no matter how slight, to the isolation ward. The men living at home were treated in the same way as those living in dormitories, except that at first a few with apparently simple colds were allowed to go and stay at home. None with significant temperature or who appeared to have more than a mild simple cold was ever allowed to go home. The company "doctor" was always available and saw that the men took care of their health; he inspected their quarters, furnished reports, etc.

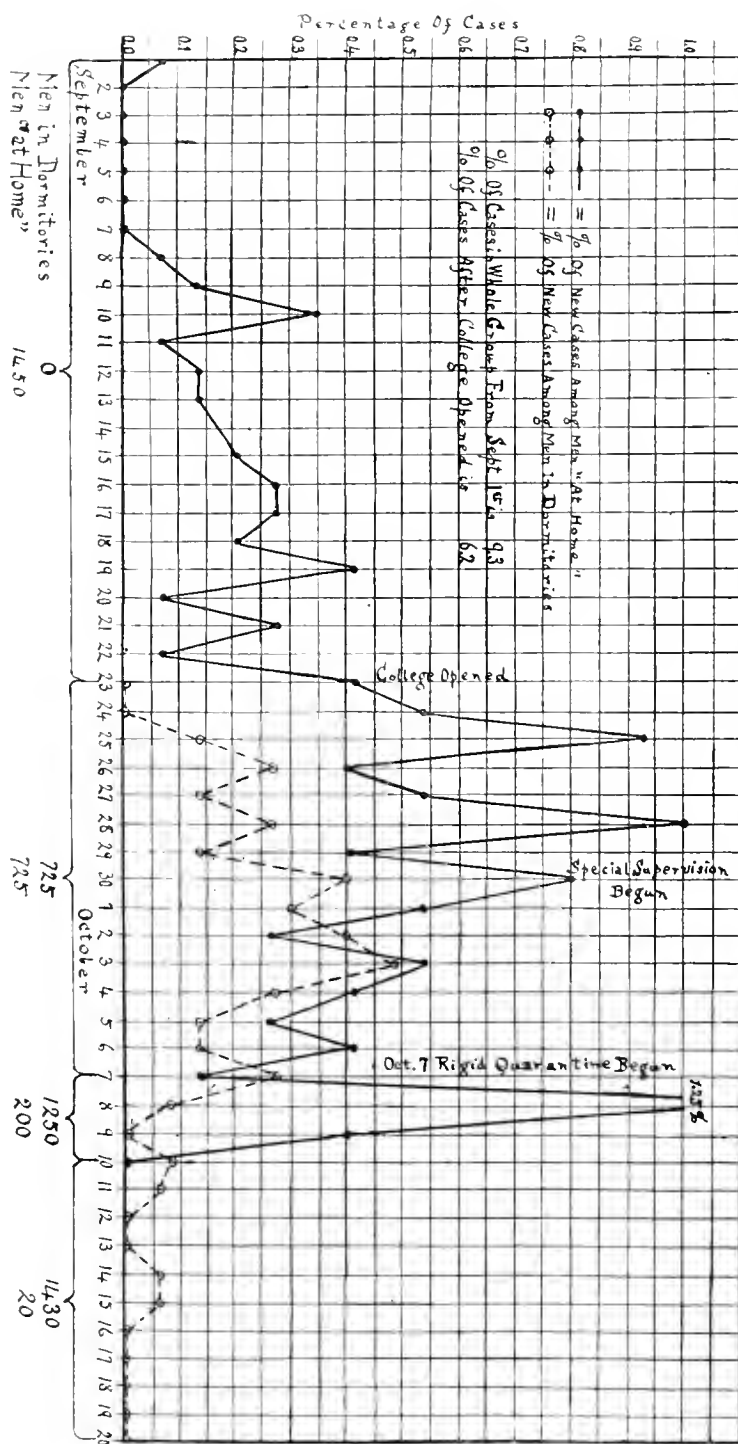
An important function that was performed

by the company "doctor" was to give two talks to his men about influenza, emphasizing the importance of reporting on the slightest indication of not feeling well, and the importance of taking proper care of their health, and asking their cooperation, etc.

Sick students were cared for in the following manner: Before October 1 cases of influenza were sent directly to the college infirmary. After October 1 the majority of the definite cases of the disease were sent directly to this hospital, but not all, because on that date an isolation ward was opened. This was a college dormitory building, with separate rooms, and a separate dining-room, and was in charge of one of the fourth-year medical students. Three types of cases, as follows, were taken here and kept separate from each other: (1) Men with apparently "simple colds" without temperature; (2) men with apparently "simple colds" with slight temperature, or those with slight temperature and without "colds"; (3) apparent cases of early influenza, not yet clearly diagnosed. The latter cases, as soon as definitely diagnosed, were sent as soon as possible, or within forty-eight hours, if not much better within that time, to the college infirmary.

The men with apparently simple colds were ambulatory and put out in the sun, but were kept separate from all others and carefully watched for at least forty-eight hours. If then it seemed desirable, they were sent back to duty. The second group were watched in a similar manner and were not ambulatory unless their temperatures were normal for over twenty-four hours. The men with the "simple colds" were quarantined because of the probable greater ease with which they might have acquired influenza, and because some such cases may have been influenza; to say nothing of the desirability of trying to prevent the spread of "simple colds."

The number of individuals that had apparently only simple colds and that could not in any way be considered to have the disease recognized as influenza, were as follows: Between 30 and 40 cases per day were reported during the first five days that the company "doctors" were at work. This, of course, includes a considerable number of men that developed the colds prior to September 30. During the next week, there occurred between 15 and 20 cases per day; and during the third week, about four a day. This number having only appar-



ent "common colds" gives an idea as to the frequency of such an infection at the time of the epidemic. One cannot help wondering whether some of these cases were not caused by the same etiological agent as causes the disease recognized as influenza. As this could not be determined they were grouped quite separately.

Masks were worn and the usual personal preventive measures were carried out by those in charge of cases, suspected cases, or examining for suspected cases.

The statistics obtained regarding the number of cases that occurred at any time among the 1,450 men are presented in the accompanying table and chart. Many very mild cases of but a few days' duration are included, besides all cases that could properly be called influenza, otherwise the statistics might be unduly favorable. Such mild cases probably are often not reported in cities, especially among the poor, because they do not call a doctor. In our series there were two deaths from pneumonia: one who developed the disease prior to October 1, and one after that date.

The total number of men who had influenza was 136, or 9.3% of the entire group. Forty-six of these cases occurred prior to the opening of college, as learned from the history given on questioning each man, so that 90 individuals, or 6.2% of the men, had the disease after coming to Cambridge. Of the 90 cases that had the disease after college opened, 60 cases occurred among those living outside the dormitories, and 30 developed among those living in dormitories: four of the latter occurred after practically all the men were living in dormitories.

The curves in the chart show the percentage of cases of influenza developing daily among

TABLE OF THE NUMBER OF CASES AMONG A TOTAL OF

	1450 MEN.				TOTAL
	To SEPT. 24	SEPT. 24 TO OCT. 2	OCT. 2 TO OCT. 10	OCT. 10 TO OCT. 21	
Before college opened	46				46
Cases among men "at home"		41	18	1	60
Cases among men in dormitories.		12	14	4	30
Total cases	46	53	32	5	136
Per cent. of the 1450 men living "at home" ...	100%	50%	23±%	2±%	
Per cent. of the 1450 men living in dormitories	0%	50%	77±%	98±%	

the total number of men living "at home" on any given day, as contrasted with the percentage of new cases occurring among the total number of the men living in dormitories on any given day.

From the table and chart, it may be seen that there was a considerably larger proportion of cases occurring among the men exposed to the public than among the men housed together and exposed somewhat at first to the public and later practically not at all.

Likewise it may be noted that after medical supervision of the men was well under way, and with the increased numbers taken into the dormitories, there was no increase of cases of influenza. It is to be recognized, however, that the disease was on the wane, which may have wholly accounted for the drop in the number of cases and for the absence of a greater number of cases among the men in the dormitories at this time. However, it seems probable that the detailed supervision and living arrangements outlined helped to prevent the spread of the disease, so that it did not occur in as great a percentage of men as it did in some army cantonments and naval stations.

We are inclined to believe that if strict quarantine and preventive measures had been employed for all the men when the first men began to live in dormitories, there probably would have been fewer cases among this group of men. We thus feel that rigid quarantine with adequate medical supervision is a most desirable method to at least attempt when trying to prevent influenza, or any disease apparently transmitted by contact.

Selected Papers.

TOOTH IMPACTED IN A SECONDARY BRONCHUS OF THE LEFT LUNG; REMOVAL BY LOWER BRONCHOSCOPY AFTER TWO UNSUCCESSFUL ATTEMPTS BY UPPER BRONCHOSCOPY.*†

By SIR STCLAIR THOMSON, M.D., F.R.C.P., F.R.C.S.
Professor of Laryngology in King's College Hospital, London.

THE complete history of a single case, which is full of incidents, is sometimes of more value than a whole series of records of uneventful operations. The heading of this paper indicates its chief point of interest, but the tale I now unfold has many others which concern the laryngologist, the dental surgeon, and the family physician.

HISTORY OF ACCIDENT.

On November 20, 1917, a healthy girl, aged 10, of a nervous type, was placed under nitrous oxide anaesthesia for the purpose of removing the two first lower (temporary) molars. The left one was the first extracted; the dental surgeon drew it outside the mouth in his forceps and then shook it loose, with the intention of throwing it into the usual porringer beside the dental chair. But he noticed, instead, that the tooth fell on to the napkin, tucked under the child's chin, and was caught there in a fold. Without delay he proceeded to the extraction of the corresponding tooth on the right side; as he turned and threw this away the child, recovering from the anaesthetic, raised both hands (with the napkin above them) towards her mouth, making at the same time a deep inspiratory gasp. The dentist never suspected that at this moment the first tooth must have re-entered the patient's mouth, and no one was more astonished than he was, later on, when he heard the subsequent history.

When the child recovered from the gas, it was remarked that she was slightly wheezy. She returned by train to the country that afternoon, and in the evening the mother, noticing the wheezing, thought that her daughter had a slight cold. A few days later, the family attendant, Dr. Smallwood of Little Waltham, Chelmsford, was called in and found a catarrhal condition with very little air entering the left lung. Wheezing continued, and, in

* Reprinted from *The Practitioner* August, 1918.

† Communication read before the Section of Odontology, Royal Society of Medicine, June 10, 1918.

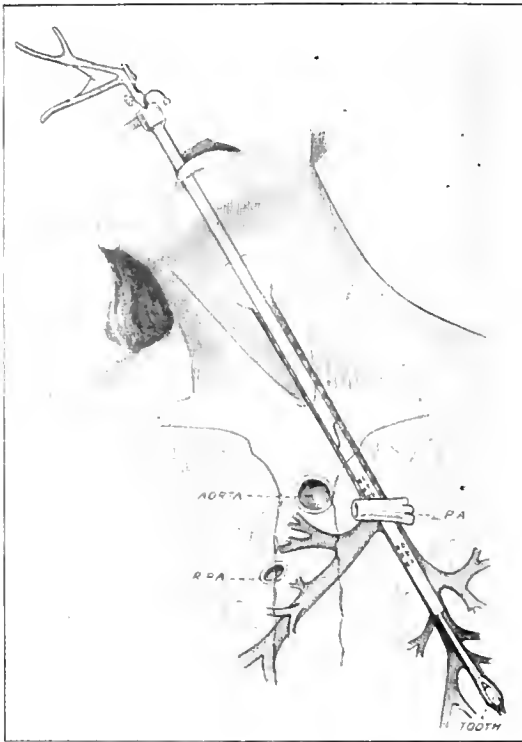


FIG. 1.—Upper or Personal Bronchoscopy. Semi-diagrammatic drawing, showing how the head and neck have to be flexed to the right so as to allow of the passage of the endoscopic tube into the left bronchus and its divisions. In the drawing, Moore's forceps are seen grasping the tooth in secondary bronchus, in a position similar to the case described in this paper.

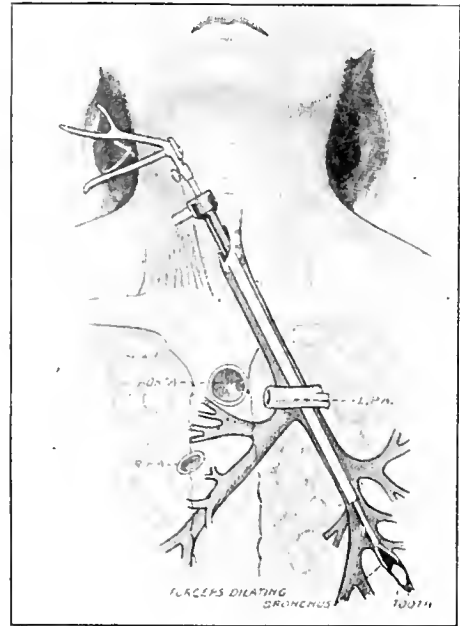


FIG. 3.—Lower or Tracheotomic Bronchoscopy. A semi-diagrammatic drawing showing the position of the endoscopic tube when introduced through the tracheotomy wound. The relation of the aortic and pulmonary arteries is also shown. In the drawing, Moore's forceps are seen dilating a secondary bronchus and seizing an impacted tooth as described in the present communication.

view of a definite family history, it was treated as possible asthma. Some relief was obtained, but no cure.

In view of the one-sided symptoms, Dr. Smallwood made further inquiry, and, on tracing the illness back to the period of the tooth-extraction, he shrewdly suspected that there might be a foreign body in the lung. A consultation with Dr. J. F. W. Still confirmed him in this hypothesis. There was then, a month after the visit to the dentist, a slight wheezing which was audible at a distance of a foot or two from the chest. Rhonchi were heard on both sides, but chiefly over the left lung, with absence of air entry towards the posterior border of the left axilla. There was a short cough.

An X-ray examination by Dr. Ironsides Bruce gave the following report:—

"Limited movements of the diaphragm on the left. The left lung showed increased trans-

lucency, the diaphragm remaining in a position of almost full inspiration. There is to be seen an opacity in the region of the root of the left lung; it possesses rather an indefinite outline, and is roughly rectangular in shape. The left lung shows increased translucency as compared with the right, and the left diaphragm lies at a much lower level in the thorax than the right."

Dr. Bruce's opinion on the finding was as follows:—

"On account of the history of a possible foreign body in the bronchus the opacity reported above, which lies in a position corresponding to the left bronchus, might well represent a tooth. But, on the other hand, it may represent a calcified root gland, though it should be noted, that its size, shape and position is not such as might be expected from such a gland."

This X-ray examination was confirmed by another by Mr. A. D. Reid.

FIRST EXAMINATION.

On December 28, 1917, I started to attempt removal by direct bronchoscopy through the mouth. Bromide was given for three days beforehand to diminish reflex. Chloroform was administered by Mr. Bellamy Gardner, and I was assisted by Dr. Irwin Moore.

I found the build of the patient showed narrow and long air passages, allowing only the use of a Brüning's 7 m.m. tube. Reflex cough was diminished, as I passed the tube down the trachea, by the application of cocaine to the larynx and the carina—which is the next most sensitive spot. I had to be moderate in the use of cocaine (a 2½ per cent. solution) owing to the age of the patient. After much searching the white glistening tooth was seen, tightly impacted in an externo-lateral secondary branch of the left bronchus, at a depth of 10½ inches from the teeth. (See Figure 1.) All my efforts to grasp it with various instruments failed. The narrowness of the bronchiole prevented a wide opening of any nippers, and the polished, smooth, ivory surface of the tooth gave no hold. I then made use of a long probe with a hook at the end, and insinuated it between the tooth and the bronchial wall, with the hope of either extracting the tooth or turning it round. The hook was passed beyond the tooth but all efforts to extract the tooth failed; what was worse, the hook appeared to catch in some other bifurcation close behind the tooth, and I found that I could extract neither the tooth nor the hook! I had forgotten Chevalier Jackson's warning that "hooks with a curve greater than a right angle are very apt to become engaged in small orifices and to be very difficult in removal" (p. 272, *op. cit.*). After some anxious five or ten minutes I succeeded in disengaging the hook with only slight traumatism.

The tooth remained in position.

The patient had now been under chloroform for 1 hour 45 minutes, so I decided to abandon the attempt that day.

DIFFICULTIES.

In his classical work on *Peroral Endoscopy and Laryngeal Surgery* (St. Louis, Mo., 1915, p. 289) Professor Chevalier Jackson, of Philadelphia, has the following paragraph: "One of the most difficult mechanical problems is where a foreign body completely occludes a bronchus

into which it is tightly drawn by the absorption of air below, and that in addition has a conoidal form towards the operator. The problem is difficult, especially if the intruder is hard and smooth, because the forceps cannot get a large surface of contact and hence slip." I was evidently, in American parlance, "up against" an even more difficult proposition, for not only had I to do with a smooth, ivory, conoidal surface, but with a foreign body which was tightly impacted, not in a main bronchus but in a secondary bronchus. To this point it must have been straightway drawn with that first deep inspiration as the child recovered from the anaesthetic, for it is noteworthy that, from that moment, there had been no attacks of spasm or violent coughing such as there would have been if the tooth had at any time been loose in the trachea or large bronchi. Moreover, the tooth had been fixed in this bronchiole for five weeks—time enough to allow of all the air beyond being absorbed and the tooth becoming more tightly impacted.

For those who do not know his work, I might say that, in matters of endoscopy, Chevalier Jackson is *il maestro di loro che sanno*, and that we are all willing and eager to learn from his great skill and large experience. I have little doubt that he has removed more foreign bodies from the food and air passages than any other single laryngologist in the world. He has been able to gain this position by specializing in this line, and by having all North America as a field of practice. Anyhow, after the first failure I turned to his writings and there read this dictum (p. 258): "Any intruder that has gone down through the glottis can be brought up the same way, if turned to the position of least resistance." I was not sure of being able to turn the tooth, but I determined to make a second attempt at peroral extraction.

From the first examination my little patient had no shock or upset. She slept well and swallowed easily; the temperature did not rise above 99°; and within a few days she was out walking. An x-ray plate by Dr. Ironside Bruce showed the tooth still present in a left secondary bronchus, and even deeper in the lung.

SECOND EXAMINATION.

Eight days later, on January 5, 1918, chloroform was again given. There was much more

reflex cough and secretion of mucus this time; the tooth was discovered more deeply; less of it was visible, owing to swelling of the mucosa. I found it very difficult to keep the tooth well in view in the centre of the field of vision owing to the strong traction towards the patient's right side which I had to maintain on the handle of the instrument, in order to direct the beak of it well towards the left axilla. I was about to introduce Dr. Irwin Moore's well-known non-slip forceps when—doubtless owing to the aforesaid traction dragging on the root of the lung or on the heart—the patient suddenly collapsed, and had to be restored by artificial respiration. She had been under the anaesthetic 40 minutes. There was no shock or feverish reaction from this examination, but after these two ordeals I thought it best to let the child go to the country—which she did five days later.

ALTERNATIVES.

What was to be done? Were we to "wait and see," a policy which has gone out of favor in endoscopy as it has in politics? Foreign bodies have been coughed up many a time in days gone by, sometimes after a prolonged stay in the chest. But, unfortunately, statistics do not help us in this, for we never know in what part of the air-tract the intruder had been sojourning, nor how firmly it had been fixed. A large, light, foreign body, mobile in the trachea or a main bronchus, may easily be coughed up; but there is little chance of such a happy expulsion with a small, solid, smooth substance tightly impacted in a secondary bronchus and with all the air on the far side of it absorbed. On the contrary, each deep breath—preliminary to an explosive cough—would tend only to wedge it more deeply.

There was the alternative of the tooth becoming loosened by suppuration taking place around it—almost certain to happen in time—and its being expelled through the mouth with the discharge of the abscess. But, unfortunately, even with such a development there was no certainty that the pus would remain localized and burst towards the main bronchus, nor that it would bring the tooth with it. The pus might just as readily diffuse in the lung and cause sepsis.

I considered the possibility of thoracotomy. The results of this operation are not brilliant. Considerable progress has, I believe, been made

during the great European War in removing through the ribs fragments of shells and other missiles which have entered the lungs. But there is a great difference between following the track of a foreign body which has penetrated into the lungs through the chest wall, and hunting around from the outside of the thorax for a foreign body which has entered from the glottis and lies at the root of the lung, close behind the pericardium.

While weighing these considerations, I made some investigations with Dr. Moore on the cadaver, and he further perfected some forceps for securing a good grip.

LUNG ABSCESS DEVELOPS.

Action, however, had soon to be decided on, owing to developments in the case. The patient, as I have narrated, returned to the country after her second anaesthesia on the 10th January last. Dr. Smallwood reported that "there is no wheezing and only occasional slight shortness of breath." There was slight deficiency of air entry in the left axilla, rather toward the posterior fold. The heart's apex was about $\frac{3}{4}$ -in. outside the nipple, probably due to collapse of a portion of the lung and the heart swinging over to take its place. She continued to eat and sleep well, in spite of the tooth in the lung, and the temperature was normal. But it soon began to rise (see Chart, Fig. 2), until it was oscillating from 97° every morning to 101°, 102° and 103° in the evening. An X-ray by Dr. Ironside Bruce showed the tooth as before, or even deeper, with commencing opacity in the left lung. Abscess formation had evidently taken place and action could not be long delayed.

I was glad to share the responsibility of my third campaign by having a consultation with Dr. Dundas Grant and Mr. E. D. D. Davis. After hearing the history and difficulties of the case, these colleagues were unanimous in strongly recommending that there should be no further attempt at removal by upper bronchoscopy (*i.e.*, through the mouth); that there was no objection to tracheotomy except the slight scar, which I had wished to avoid in a young lady; that tracheotomy would enormously facilitate extraction, and that, in the event of failure to extract the tooth, the patient would be much safer with a tracheotomy tube in her neck if we should be compelled to await a later chance of spontaneous expulsion.

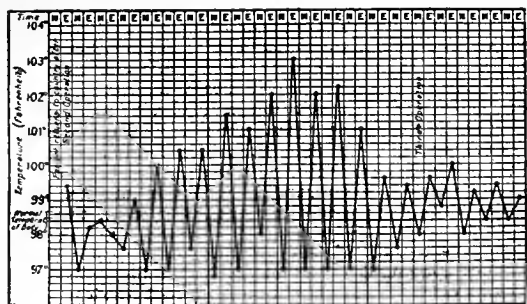


FIG. 2.—Chart of temperature indicating formation of abscess in lung, beyond the impacted tooth.

I readily agreed to this after the experiences I have related, and also because I had already fulfilled one of Chevalier Jackson's rules, which is as follows:—"If the first bronchoscopy is not successful after 15 or 20 minutes in a child, it is better to desist, wait a few days, and repeat the oral bronchoscopy at least twice before resorting to the tracheotomic route" (p. 252).

THIRD EXAMINATION AND SUCCESSFUL REMOVAL.

Next morning, January 26, 1918, chloroform was administered by Mr. Bellamy Gardner. I had given bromide for three days beforehand. Again I was assisted by Dr. Irwin Moore, and also had the valuable help of Dr. Dundas Grant and Mr. E. D. D. Davis. The trachea was quickly exposed without having to tie a single vessel. I injected a 2½ per cent. solution of cocaine, with a little adrenaline, into the lumen of the trachea by stabbing between the rings with a hypodermic needle. This abolished any cough on opening the trachea. Through the tracheotomy wound I was able to pass a 10 m.m. Brüning's tube, instead of the narrow 7 m.m., which was all I had been able to introduce through the glottis. I came readily down on the tooth at a distance of less than 5-12 ins., instead of the 10-12 to 11-12 ins. interval by which I was separated from it in the two previous examinations. Any approach of the instrument to the tooth caused reflex barking cough. Some little time was spent, therefore, in cocainizing the region. As this was being done some milky fluid kept oozing upward alongside the tooth. Finally, when a swab produced no reflex on touching the tooth, I took a pair of Killian's "bean forceps" down to the tooth and then dilated them so as to

free the tooth and get a good grasp (see Fig. 3). This must have released the pus pent up behind the tooth, for there was a gush of yellow fluid, and, for the moment, I thought I should be balked in removal. But, knowing I was in good position, I carefully closed and withdrew the forceps and found the tooth firmly grasped in the middle of them. One or two teaspoonfuls of yellow pus welled into the left bronchus and were cautiously sponged out, while the head and thorax were lowered in the Trendelenburg position. I left the bronchiole clear, with only a minute granulation in it.

From the beginning of the tracheotomy to the removal of the tooth, the time occupied was exactly 29 minutes. There was no shock or collapse.

Complete Recovery.—The after-history was uneventful. In an effort to avoid all scarring I closed the entire wound in the neck with buried catgut and superficial silkworm and horsehair sutures, but the two or three middle sutures had to be cut away, as there was some cough leading to subcutaneous emphysema, which extended right up to the eyes. One month afterwards the patient went to the seaside, and Dr. Smallwood wrote to me as follows:—"She seems very fit, and the chest is clear as far as I could make out except a little deficiency of air entry in the left lower axilla." The scar in the neck is insignificant.

FOREIGN BODIES LESS FREQUENT IN LEFT LUNG

I might here remind my readers that it is decidedly rarer to meet with foreign bodies in the left lung than in the right. Statistics agree in this, although the figures show the proportion entering the right bronchus vary from 75.4 per cent. (Gottstein) to 70.2 per cent. (von Eicken) and 62.5 per cent. (Morell Mackenzie). Some of the reasons for this are demonstrated by a reference to Fig. 4 taken from my text-book.¹ It will be seen that the diameter of the right bronchus is decidedly larger than the left; indeed, it is very slightly narrower than the trachea itself, with which it is also in a more direct line, owing to the less angle of deviation. There is also a larger volume of air being drawn along the right

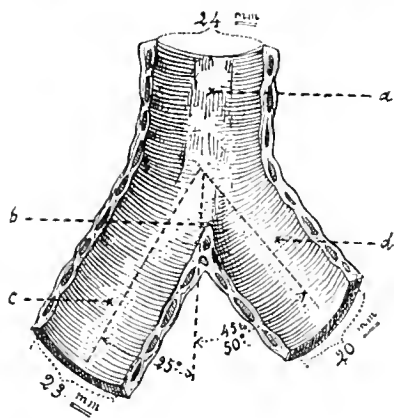


FIG. 4.—Semi-diagrammatic drawing of a vertical, transverse section of the bifurcation of the trachea, viewed from the front.

bronchus. This picture also explains why, while it is rarer for a foreign body to enter the left bronchus it is also—on account of the greater obliquity—much more difficult to get the intruder out!

BIBLIOGRAPHY.

I had not intended attempting a study of the records of the falls of teeth into the lower air passages, but, by pure accident, I came across a communication which is very interesting when compared with my own, whether from the points of diagnosis, method of treatment, or after-result. In 1908, Mr. Rutherford Morison read "Notes of a Case in which a Portion of a Lung was Excised" before the Medical Society.² This turned out to be the case of a woman of 36 to whom chloroform was administered while 6 to 8 stumps were extracted. On recovery she found one tooth lying loose, between the cheek and gum, and spat it out; and at the same time, felt difficulty of breathing and a tightness in her chest, and expressed her own conviction that a "stump had gone down her throat." Three weeks later a long illness started with cough, blood spitting, profuse and foetid expectoration, and loss of weight and strength. This went on for two years before the diagnosis was made of bronchiectasis limited to the lower part of the left lung caused by "a tooth impacted in a bronchus," although "Roentgen ray examination showed no abnormal shadow." Operation from the outside was attempted by resecting 6 ins. of the eighth rib. A large portion of the lower lobe of the lung was removed (see Fig. 5), but the patient died 28 days later from pericarditis.

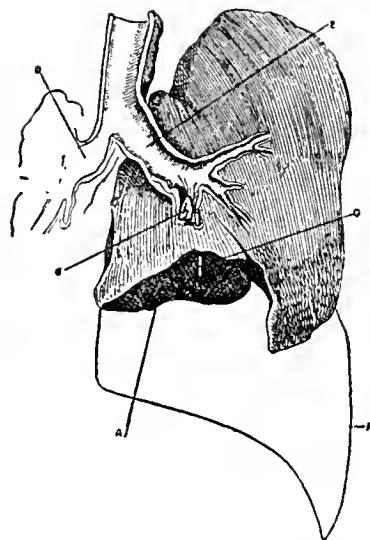


FIG. 5.—A, Cut and healed surface of lung; B, stump of tooth in bronchus; C, probe from cut surface through open bronchus to tooth; D, right bronchus; E, left bronchus; F, outline of lower part of lung excised.

The post-mortem showed that the tooth-stump was impacted in a secondary bronchus, and that it had been missed at the operation only by three-quarters of an inch.

At the ensuing debate J. Kingston Fowler referred to a case of a tooth in exactly the same position; a cavity formed in the lung; operation from the outside failed and the patient ultimately died from pulmonary tuberculosis. A. Barker narrated a case of a tooth in a right bronchus leading to gangrene and an empyema. It was decided to attempt removal through the chest wall, but "the first few whiffs of chloroform proved fatal."

The fact that three separate personal cases of a tooth in the lung could be recorded at a meeting of a general medical society would appear to indicate that the accident may not be so rare as one might think. That X-ray examination should have failed to detect the tooth shows how far radiology has progressed in these eight years, and that endoscopy should not have been employed in Mr. Morison's case demonstrates how slowly the knowledge spreads in the profession of the recent rapid progress of laryngology. The case conveys one other lesson for all of us, and that is, not to disregard a patient's own feelings when he says that he feels something has stuck in the throat or chest.

A recent discussion in America shows that bronchoscopic cases of dental origin are by no means uncommon. Indeed, one speaker suggested the necessity of a detailed method of observation and counting in the extraction of teeth, similar to that provided by the abdominal surgeon in cases of sponges and instruments! This would not entirely cover the ground, for in the above debate the following articles of a dentist's armamentation were mentioned as having been retrieved from the lungs:—teeth, gold crowns, bridges, dental burrs, pieces of rubber, and fragments of plaster of Paris models!

UPPER AND LOWER BRONCHOSCOPY COMPARED.

The comparison of upper and lower bronchoscopy (or the per-oral and tracheotomic routes) calls for some consideration (Figs. 1 and 3). In his own last 182 cases, Chevalier Jackson records that the foreign body was found and removed in 177 cases, and that in each instance he did without a tracheotomy (*op. cit.*, p. 246). He is an ardent supporter of this route, as I have already quoted. The above figures show his success, and the safety is demonstrated by his death-rate of 1.7 per cent. He attributes his success largely to the lateral or forward flexions which can be given to the head by a specially trained assistant, so as to extend the angle formed by the trachea and bronchus (the "Boyce position"). But his precepts—or his successes—are not invariably followed. In 1913, he collected a record of 156 foreign bodies removed by various operators in the United States; of these, 22 were extracted through a tracheotomy opening. I have no doubt that Jackson's endorsement of the upper route is well founded, in his case, by this exceptional experience, his completely organized clinic, his permanent and highly trained assistants, and the evolution of "team work," which is well established in America but only beginning to be talked about here. In addition, he has the advantage of being accustomed to work with narrower instruments and without a general anaesthetic. I also agree, as I have already said, that at least two attempts should first be made in most cases to effect extraction by the mouth; and I note that Jackson says that "he regards tracheotomy as perfectly justifiable in any case in which the surgeon in charge deems tracheotomy for any

reason whatsoever indicated for the best interests of the patient" (p. 258).

After all, it is the interest of the patient which must settle any question of nicety of an operation. Endoscopy of the air and food passages must always remain in the hands of the expert laryngologist. If he is well experienced and in regular practice, he will first approach such cases as mine through the mouth, and in most cases he will succeed. This is the first, in my practice, in which I have failed since I went to learn the technique at Freiburg in 1902. But in a certain number of cases, particularly the rarer and more difficult ones which occur in the left lung, the lower route, through a tracheal opening, is in the interest of the patient. It will also be the route taken more readily by those who are less experienced, for it enables the surgeon more promptly to live up to the old adage that he should cure his patient "*tuto, cito et jucunde*." In the present case there was hardly any room for comparison between the difficulties and anxieties of the two per-oral interventions and the facility, simplicity, safety and promptness which were obtained by operating through a tracheotomy orifice (Plate III., Fig. 3). To be brief, the advantages of the better route can be summarized as follows: (1) Less anxiety with the anaesthetic, for we all know the administration through a tracheotomy opening avoids all pharyngeal and laryngeal reflex and is therefore much smoother and safer; (2) Ability to succeed without several trained assistants, because there is no longer the necessity to mobilize the head; (3) The use of a wider and shorter tube, thus obtaining (4) better illumination, (5) a larger field of vision, and (6) increased facility of manipulation; (7) Less leverage and traction on the important structures at the root of the lung; (8) Shorter sitting; (9) Greater certainty in result; (10) In the event of failure, or of the foreign body shifting its position during the séance, the tracheotomy is a decided security. I must add that in my case the abscess formation had loosened the impaction of the tooth and so mitigated one of my difficulties before the third intervention.

In comparison with the advantages, what are the drawbacks of a tracheotomy? Except for the trifling scar—of no importance to any individual compared with a risk of life, and val-

ned only by young ladies who have to go *décolletées* to Court, and are not yet possessed of a diamond dog-collar!—I know of none. The death-rate from a preventive tracheotomy should be nil; it is the circumstances of a tracheotomy done for relief, or the results of a delayed tracheotomy, which cause disaster. In the present case, it was the adoption of the tracheotomy route which saved the child's life. I think lower bronchoscopy will therefore be the necessary method in certain circumstances, or when foreign bodies are tightly impacted, or when they have receded to the deepest corners of the airway, and particularly in the greater difficulties presented by their entry into the left chest.

In these views I am glad to find myself in accord with Dr. R. Paterson (Cardiff), who has twice adopted lower bronchoscopy in young children after failure by the per-oral route.

PRECAUTIONARY TREATMENT IN SIMILAR CASES.

I might well be asked what line of action a dental surgeon should follow if he thinks, or even suspects, that a tooth or other foreign body had entered the air passages while his patient is in the chair. Well, the first and most important indication is given us in the good old medical principle "*primum non nocere*." We must first bear in mind the things the dentist should not do, and Chevalier Jackson has tabulated the following seven "donts."

1. Do not reach for the foreign body with the finger, lest the foreign body be thereby pushed into the larynx, or the larynx be thus traumatized.

2. Do not make any attempt at removal with the patient in any other position than recumbent with the head and shoulders lower than the body.

3. Do not hold up the patient by the heels, lest the foreign body be dislodged and asphyxiate the patient by becoming jammed in the glottis.

4. Do not fail to have a radiograph made if possible, whether the foreign body in question is of the kind dense to the ray or not.

5. Do not fail endoscopically to search for a foreign body in all cases of doubt.

6. Do not pass an oesophageal bougie, probang, or other instrument blindly.

7. Do not tell the patient he has no foreign

body until after a radiography, physical examination, indirect examination, and endoscopy have all proven negative" (235 *op. cit.*).

It will be gathered that several of the above precautionary measures are advised so as to prevent gravitation attracting the foreign body, particularly if of small size, into a deeper secondary bronchus. It is better, if possible, for the patient to rest until he can be treated lying flat and face downwards. In this position there is less likelihood of the foreign body falling into the middle or upper lobe secondary bronchi regions, where it is particularly inaccessible, and it is into these undesirable tubes that it might gravitate if the patient lay on his back or on one side. The patient should not be encouraged to cough or hawk up. The chances of success are small if the foreign body has passed the glottis, and the efforts may only drive the point of a sharp substance, like a pin or tack, deeply into the mucosa. In the case of a loose or larger body, the cough may drive it up into the glottis and so threaten asphyxia. If one felt certain that the tooth or other foreign body was in the oesophagus, these rules would not apply, but, short of that, it is wiser to follow them as nearly as possible until the case can be placed in the hands of a skilled laryngologist.

A MEDICO-LEGAL ISSUE.

That similar cases may be fraught with unpleasant legal consequences is shown by a paragraph in the *British Medical Journal* of December 7, 1912. It is therein recorded that a Glasgow dentist was sued for £1,500 damages. The pursuer alleged that in February, 1908, the defender allowed a portion of a tooth to fall down the pursuer's throat into his right lung; three years afterwards, during a paroxysm of coughing, he coughed up the tooth. Fault was denied by the defender. At the trial in March last a jury, under Lord Ormisdale, returned a verdict for the pursuer and assessed the damages at £750. The defender appealed for a new trial, on the grounds that the verdict was contrary to evidence, and that the damages were excessive. The report in the *British Medical Journal* concludes as follows:—"The Division of the Court of Session (Lord Johnston dissenting) refused the application of a new trial. Lord Johnston was satisfied that the defender had suffered an in

justice, and that the verdict was not only a bad one but that it was given in circumstances which called for a new trial, and he thought he was bound in fairness to the defender to say so."

I entirely agree with Lord Johnston, and I cannot imagine how any jury could give a verdict against a dentist after a similar accident, unless it were proved that the dentist neglected to use reasonable care. The accident might be caused by sudden movements of the patient, as in my case. Even when the patient is under a general anaesthetic, his unconscious movements, and the consequent inspiration of the tooth might be fairly attributed, in some cases, to his previous alcoholic excesses, and not to the dentist's clumsiness! Or, again, might not inefficient administration of the nitrous oxide gas be the chief cause, and the anaesthetist be held responsible?

The public are only too ready to run all sorts of risks from quacks and charlatans, and to be silent when their silliness lands them in disasters; but they are equally hasty to blame the legally qualified dental surgeon or medical man if everything is not to their perfect satisfaction. Fortunately, the law of England is very fair and just, and we have rarely to complain of actions for malpraxis.

RESULTS OF BRONCHOSCOPY.

Let me just conclude by recalling what endoscopy has done for the benefit of humanity. In former times a certain number of foreign bodies, loose in the larynx or trachea, were coughed up sooner or later. Still, statistics in pre-bronchoscopy days show a death-rate of 52 per cent. The early years of bronchoscopy, *i.e.*, up to 1908, reduced the mortality to 13.1 per cent. (von Eicken). In 1909 and 1910 this was further reduced to 9.6 per cent. (Kahler). By 1913 the death-rate of various surgeons in the United States had fallen to 5.3 per cent., and Chevalier Jackson's own practice in his last 182 consecutive cases of bronchoscopy for foreign bodies give a total of three deaths (1.7 per cent.) (p. 246, *op. cit.*).

Deaths that do occur are less attributable to bronchoscopy than to the results of the sojourn of the foreign body or to blind efforts at removal.

NEED OF EXPERT HANDLING.

But these favorable results can be secured only in experienced hands. Fletcher Ingals says he has seen numerous cases of fatal results from bronchoscopy, and he believes that "the fatalities with inexperienced people would run between 10 and 20 per cent. if all cases could be collected." The same writer appreciates the strain put on us by such cases. He writes: "The heart-breaking delays, the extreme anxiety for the patient, and the knowledge that prolonged operations of the kind are dangerous, while failure may spell death for the patient, place the operator under such circumstances under an indescribable stress." No wonder Chevalier Jackson says: "There is absolutely nothing like it in the whole realm of surgery."

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Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

(Concluded from page 679.)

THE VALUE OF THE DICHLORAMIN-T CHLORCOSANT SOLUTION (DAKIN-DUNHAM) IN THE TREATMENT OF INFECTIONS OF THE UPPER AIR PASSAGES.

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Dichloramin-T, the basis of the Dakin-Carrel fluid, so extensively used as an antiseptic in a wide variety of infectious conditions, as an intense germicidal action corresponding to its high content of chlorin. It is difficult to find for it perfectly satisfactory solvents which will yield stable solutions. Drs. Dakin and Dunham state that the best medium thus far found is an oil obtained by the chlorination of paraffin wax, to which has been given the

name "chlorcosane." Other solvents experimented with are a mixture of eucalyptol and a paraffin oil, and a heavy oil obtained by the chlorination of eucalyptol. Eucalyptol has been found to be irritating. Chlorcosane is not irritating and has seemed decidedly preferable. Explaining the action of dichloramin-T in oil, Dr. Dakin says that antiseptics incorporated with or dissolved in oily substances usually possess little if any antiseptic activity, because intimate contact with the infected matter is hindered by the oil. When, however, the dichloramin-T solution in chlorcosane is brought in contact with aqueous media the partition coefficient between the oil and the water is such that a certain amount of the dichloramin-T passes into the water and there exerts its germicidal action. The amount of the dichloramin-T thus passing from the oil is increased by the presence in the aqueous medium by substances capable of taking up chlorine, so that the oil solution seems as a store for the antiseptic which is drawn upon to maintain the germicidal activity of the aqueous medium with which it is in contact. The dichloramin-T oil solution may be sprayed upon wound surfaces or poured into accessible parts of deep wounds. It yields moderate amounts of the antiseptic to watery media, such as secretions from wounds or mucous membranes. It is suitable for sores requiring prolonged antiseptic treatment and for first dressings of wounds which do not require irrigation. The application of the oil is extremely simple, and generally it need not be renewed more than once in twenty-four hours.

Admitting the germicidal power of dichloramin-T, it is desirable to study its value in the disinfection of septic conditions of the upper air passages, regions especially liable to infection, prone to harbor germs of dangerous character, abounding in recesses difficult of access by the ordinary means of application, and often becoming foci of infection threatening extreme danger. This is especially true of the upper nasal region, the vault of the pharynx and the tonsils. The dichloramin-T may be used to advantage in these regions under three different conditions:

1. To prevent the extension of newly acquired infection.
2. To overcome the acute results of infections, and
3. To abolish the bacilli persisting in carriers.

The success of the method must depend upon the thoroughness of the application of the disinfectant. Brushing the surface of the tonsil or spraying the lower section of the nasal cavity cannot possibly be effective. A spray atomizer must be used which will carry the spray in all directions,—upward, downward, and sidewise.

The crypts of the tonsil must be disinfected to their lowest depths, and the superior half of the nasal cavities must be thoroughly reached. To effect this the following principle must be recognized and carried out: The parts must first be cleansed, and then exposed to the fullest extent by the application of adrenalin or some similar astringent, and finally the dichloramin-T oil sprayed into them until every crypt and recess has been completely reached. This thoroughness is absolutely necessary in order to secure the removal of the most deeply seated germs.

Used in the strength of 2% or less, the solution with chlorcosane is not irritating, although stronger solutions may be. Suitable atomizers are necessary. The success of this method has thus far been gratifying.

Where this method fails, in the presence of hypertrophied tonsils or adenoids, the removal of the latter may be necessary to effect a final cure.

The desire of the author is to furnish a method so simple in itself as to be readily carried out by the average practitioner with the aid of apparatus inexpensive, durable, clean, compact of form, light of weight and therefore available for use under all circumstances of medical practice, whether civil or military.

The essentials to success are:

1. Recognition of the principle of the necessity for the complete exposure of the centers of infection.
2. The use of a proper spray atomizer.
3. The devotion of sufficient time and care to the effective carrying out of the treatment.

DISCUSSION.

DR. JOSEPH H. BRYAN, Washington: I believe that this method of treatment is going to be of valuable assistance to us in correcting these conditions. I cannot understand how the spray can get into the deeper portions of the tonsils, however. I have been using a small dental syringe, by which the solution

can be carried into the depths of the tonsil better than by the spray.

DR. ROBERT C. MYERS, New York City: I have been experimenting for several months with these preparations of Dr. Dakin's fluid, although nothing definite has resulted. A great many of the cases seemed to have been relieved, and it would seem theoretically that it is the best thing that has been proposed. I have used it in solutions and mixtures, and the difficulties in reaching the depths of the crypts need, I might say, some consideration. Many of us have been trying to swab out the depths of the crypts and have always produced a certain amount of hemorrhage on account of the delicate structure of the parts, leaving a blood clot to be a culture medium for the germs. I have used also the watery solutions in tracheo-bronchial conditions, and so far the results have been very satisfactory. I do not believe that I have a case which apparently was pneumonic that has not stopped. When the oily solutions were used a great deal of precaution was observed in dropping them into the trachea, and spraying came in readily with the watery solutions. I preferred the latter, on account of my faith that too much paraffin oil going into the lower bronchi might not be brought back again. Not being observable, it was a question what would become of it.

DR. CORNELIUS G. COAKLEY, New York City: Chronic meningococcus carriers in the Rockefeller Institute were examined one afternoon by myself. The conditions found were almost identical in all—a most intense hyperemia, redness, with moderate swelling of the nasal, nasopharyngeal and pharyngeal mucous membrane. I have never seen such red throats, and none had had during the past four days any other local treatment so that I could not find any conditions there that were the result of local treatment. Of the twenty-seven, twenty-four had perfectly enormous masses of adenoids in the nasopharynx. I have rarely seen such masses of adenoid tissue in adults. They were great big husky men from the Middle and Far West, fine specimens of manhood, yet with masses of adenoid tissue bigger than my thumb as proved by removal by Dr. Babcock later. In twenty-four that was the size. In two there were smaller amounts, and in one, none. One patient had a sinus involvement. I feel that neither the dichloramin-T nor any other local disinfectant can have any great bactericidal or

germicidal value when we find such masses in the nasopharynx as were present in these twenty-four cases. I believe that this was the cause of continued finding of the meningococcus. The results of operation will be noted later on. Last fall I had a smaller number, about ten, who were sent from one of the cantonments of the South to the Rockefeller Institute for study, and we found in all large tonsils and adenoids. When these were corrected, they promptly cleared up in two weeks, and they were long-standing cases. So I think from what little I know at present, that if you have a smooth surface which can be readily acted on by the antiseptic, dichloramin-T, you will get good results, but if you have a rough surface its efficacy is much less.

DR. HARMON SMITH, New York City: I have had more or less success in employing this solution, beginning with dichloramin-T chlorococaine, in February. I believe that the most important point is to have the surface clean and the sinus clear of any invading pus or mucopus found there. In addition, we should not only bring the solution in contact with, but force it into these rugae. I have shrunk the tissues down first, and then irrigated with an aqueous solution of some alkali or normal saline, and afterwards instituted suction until there was no evidence of pus in the solution coming away. Then I have employed a syringe, which I have endeavored to impress on some as being efficient. It is loaded as an ordinary syringe, with a 2% solution of dichloramin-T. Then, by turning the stop cock, I bring about a vacuum in the sinus, after which I turn the cock and force the solution in, using the vacuum together with the force of the syringe to force in the solution. I have had more success with the dichloramin in oil than with the aqueous solution. This method has been more or less condemned by some, and they may have their reasons for it, but in my hands it has met with considerable success. In addition to the treatment of the patient it is necessary for the patient to do something in the interim between the calls at the office. I give the patients a weak solution of adrenalin, with which they spray their noses first, and later with a normal salt solution they irrigate the nose until the first outpouring of mucopus is over. I also give them a bulb that will give, on the Sorenson machine, a ten degree registration on the dial. Employing this at home, they can keep the sinus more or less

free from mucus, and one then has less to get out in the office before employing the injection with the syringe.

DR. EMIL MAYER, New York City: My experience with this solution in oil many months ago was that it produced so much irritation in the cases of otitis that I was rather chary about its use in cases in which there was much sensitiveness of the mucosa, so that I have recently been using the watery solution in cases of bronchiectasis and bronchial abscess, washing them out, and at the same time using the suction apparatus, and then throwing in the watery solution. I took a number of the cases that were under observation and, for control, used the old solution of iodine and carbolic acid, and in the others I used the chlorococaine. The site of application is in the bronchus. Drawing out the very excessive secretion by means of the suction apparatus, which was attached to a double tube, the irrigation could be continued while the suction was being used. Our experience has been of such short duration that I am unable to do more than report a decided amelioration of the worst symptom of the patients, the odor. Whether we can use a solution in oil in the bronchus remains to be seen. I will experiment later on, and hope to get better results with the oily solution.

DR. ROBERT CLYDE LYNCH, New Orleans: I have used dichloramin solutions, both aqueous and oily—the oily in 2% as described. In the sinus cases, especially the antrums, a few of the sphenoid involvements and four broncho-sinus cases, we irrigated the sinuses first with normal salt solution, following this by irrigation of the sinus with the aqueous Carrel-Dakin solution. Then we instilled into the sinuses—and antrum, frontal and sphenoid—thirty minims to a dram of the oily solution. This was naturally followed at first by an apparent increase in the inflammatory state of discomfort, which lasted on an average for about six hours. On the return of the patient the following day, we washed from the sinus apparently more secretion, but it was usually changed in character. That is, instead of the secretion showing a tinge of blood or being bloody, there was on the patient's return what appeared to me to be an excess or an irritation of what would be a normal mucous membrane. In other words, the washing from the sinus lost the peculiar mucopurulent sanguineous type, and was changed to a thinner watery discharge having a considerable

amount of apparently clear mucus. In the cultures taken from these washings there was a notable decrease in the diplococci, but the usual history of the time of clearing up of the sinus did not seem to be shortened to any great degree. In other words, running parallel cases, we found, as the winter wore on, that we were able to accomplish almost the same results by irrigating the sinuses with a normal salt solution or with a solution of permanganate of zinc. We were able to accomplish convalescence in about the same time as with the dichloramin solution. We then tried simply washing the sinus with a plain tap water, following that with the instillation into the sinus, through the cannula, of from one to two drams of 2% dichloramin oil and allowing that to remain in for as long as it would stay, requesting the patients to sit upright and refrain from blowing their nose. They apparently kept the fluid within the cavity for quite a considerable period of time—so much so that even on washing it out the next day you were able to detect distinctly some remaining odor of the chlorin. This plan was followed by the same reaction, but the convalescence in these cases was cut down apparently from two to four or five days. After the instillation of the first oil and the washing of the second day, we instill the oil for the second time. Then, if the symptoms were not too violent, we refrain from any further intrasinus medication. We did not try to wash the sinus out, but allowed the oil to stay in and gave the sinus a period of rest of about four days. In these cases the convalescence was shorter, the pain was less, and the patients come through in a most satisfactory manner. We used the dichloramin oil on tampons in cases of acute suppurative otitis requiring tympanotomy, and found that the first reaction was, as Dr. Mayer suggests, quite marked. The drum would be reddened, the canal would be reddened, but with a period of twenty-four hours of rest, the discharge would change in character from the serosanguineous discharge to one made not of blood but of an excessive secretion of what apparently was normal mucus. In other words, the secretion was white and clear. In the acute suppurative cases, some of them we felt were aggravated by the use of the dichloramin oil tampons, and we discontinued their use, not being able to accomplish the convalescence of the individual in any less time than we had by other means. We

used the dichloramin oil in the acute tracheal cases, cocaineizing the trachea rather thoroughly and introducing into it, by means of a tracheal cannula or syringe, thirty minims to a dram of the dichloramin oil solution. This was followed in one or two instances by considerable spasms of short duration, but by very rapid amelioration of the symptoms. In other words, that peculiar dusky red, that intense redness of the mucous membrane, could be seen to be much less upon the next examination. The cough was less, the distress was less, and these cases of what we diagnosed as acute tracheitis cleared up apparently very much more rapidly by the use of the dichloramin oil than they did by other means that we have been using before, but as far as the use in the sinus is concerned, we stand not able to feel that we had been giving something which shortened the period of convalescence. In the ear cases, some of them were made worse, apparently worse, by the application and we discontinued its use. In the tracheal cases we saw real, decided benefit.

DR. J. PAYSON CLARK, Boston: I learned that it was important to avoid the use of any metal in the cannula or syringe in its application. I should like to report one case of chronic pansinusitis in which all the sinuses had free discharge from them. In this case I used this solution. I washed the antra out, and the left sphenoid was involved. I washed it out with normal salt solution and boric acid, and irrigated the sinuses—the right and left frontal, the left sphenoid and right antrum—with a Dakin watery solution. The patient went home and had a headache and so much malaise that she went to bed. She absolutely refused to have me continue this treatment, although she was better the next morning.

CLOSING DISCUSSION.

DR. D. BRYSON DELAVAN, New York: Formerly when eucalyptol was employed, that solution was found to be irritating. For that reason Drs. Dakin and Dunham devised the "chlorcosane." Almost anyone with a little experience in chemistry can prepare it, but the Abbott Company furnish it under the formula of Dr. Dakin.

Regarding the important subject of disinfection of carriers, I know nothing that has come out on this subject better than the candidate's thesis of Dr. Friedberg in the last volume of

our Transactions. Not only may the crypt of the tonsil contain the offensive germ, but it may penetrate into the tissues of the wall of the crypt to such a considerable depth that even when the disinfectant is brought into contact with the wall of the crypt it does not reach the buried microorganism. The disinfection of the sinuses, too, is a difficult matter. Friedberg believes that when infection has persisted for three or four weeks in spite of treatment, then operative measures are distinctly indicated. There may be some cases in which operation, however, does not seem expedient with them. If we can find a reliable disinfectant we are in a much better position than we should be without it.

American Medical Biographies.

PRICE, JOSEPH (1853-1911).*

JOSEPH PRICE, one of the foremost figures in the development of American Gynecology in the eighties and nineties of the nineteenth century, found gynecology and abdominal surgery twin babes in swaddling clothes and left them, after a life of extraordinary activity, full-grown specialties. He made common and safe the radical operation for the treatment of pelvic suppurations, and taught men in this country how to operate with clamp, *serre noeud*, pins, and external treatment of the stump, and so made hysterectomy for fibroid tumors a safe operation, instead of a most dangerous one. Price's personality reached the hearts, while his writings and clinical teachings in some degree moulded the activities of every surgeon in this country and in Canada. To few men has it been given so to impress their personality and their sturdy convictions on their fellows.

Joseph Price was born in Rockingham County, Virginia, January 1, 1853. He received his early schooling at Fort Edward, N. Y., and attended Union College from 1871 to 1872, but left college to join the engineering corps of the New York Central Railroad.

He took his medical degree at the University of Pennsylvania in the class of 1877, and then served as surgeon on a transatlantic passenger steamer between Philadelphia, Antwerp and Liverpool, making three voyages in all.

* From the forthcoming "American Medical Biography" by Dr. J. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

He began his life's work at the old Philadelphia Dispensary, where he found a hearty coadjutor in one of its directors, Dr. Thomas Wistar. The class Price was raised up to examine and treat and become intimate with in their wretched dwellings, were the off-scourings of a corrupt, boss-ridden, badly governed city, and it is due to his fidelity to these usually neglected opportunities in a most depressing field that he owed his subsequent rapid advancement to the position of one of the foremost surgeons of America. If the slum poor of the city had been queens, instead of queans, they could not have received better and more faithful care at his hands. Often did he, at his own expense, when he was struggling for recognition and for a livelihood, send some sad, worn-out creature to the country for several weeks to convalesce from a severe operation; his warm, Virginia heart was ever peculiarly tender towards the colored women under his care.

"Joe Price," as every one called him, had a racy humor and often found relief from care and complete relaxation in relating to chosen spirits following his work, the comical situations and misunderstandings continually arising in the course of his visits to the city's poor. Let it be noted that his jests about the poor and about the quaint old mammies he met were ever tinged with a chivalrous, tender sympathy; it was only when discussing his rivals that his humor became grim and the bolt often carried a festering barb.

Price was a devoted admirer of Marion Sims, whose "Uterine Surgery" he knew by heart; he was also a follower and close friend of Sims' peer, Thomas Addis Emmet, and it was for many years his special delight to make up parties of interested Philadelphian and visiting surgeons, to run over to New York to meet Emmet, by special appointment, and see him do a vesico-vaginal fistula, or a perineal, or a cervical operation. The value of these trips was enhanced by the anticipatory graphic and lively picture of what we were to note particularly in the operations; in his zeal Price would grasp his interlocutor's coat or a bit of handy rag, and proceed to demonstrate with a needle and thread, or perhaps he would squeeze and adjust his thumb and fingers so as to demonstrate the principles of some plastic operation under discussion. His admiration for Lawson Tait, whose book, "Diseases of the

Ovaries," he knew from cover to cover, drew him to Europe about the year 1887 and brought him into vital contact with England's pioneer surgical genius. Later he made a second visit to Birmingham and the two surgeons corresponded until Tait's death. Price's friends often dubbed him the Lawson Tait of America; as a brilliant, successful surgeon, in a large measure the inaugurator of a new era in this country. The comparison is justified, but on the other hand, although Price had the grave faults of strong bias and impulsive likes and dislikes, he was in every way immeasurably Tait's superior as a man. Joe Price's chief fault was an overmastering jealousy of the nearby successful competitors, and inasmuch as these, too, were but frail and erring mortals, his strictures were naturally often justified: he never knowingly or deliberately falsified.

His surgical technique was of the simplest—with a board for a table top and a little fistful of instruments, he brilliantly executed the most difficult abdominal operations. The secret of his success lay in his fixed purpose in life, his active restless mind, his piercing vision and his long, deft, trained fingers, which were at once the envy and the despair of other surgeons. Under Tait's influence, and encouraged by his own phenomenal success in his abdominal surgery, he rejected and ridiculed antiseptics and the germ theory, but he preached "asepsis" as some sort of a different doctrine, and thus practically attained his unparalleled results. Joseph Price easily led abdominal surgery on women in this country for nearly two decades. He naturally fell heir to the abdominal work of his professor in surgery, D. Hayes Agnew, who was too old to master the new fields opened up; his obstetrical skill was such that R. A. F. Penrose, his professor in obstetrics, constantly relied upon his skill in difficult cases.

Price never held any collegiate teaching position, and yet he taught more men how to do abdominal and pelvic operations, and had more grateful followers than any other man in America.

His kindness to the poor, and a supreme indifference to the bondage of office hours (the despair of his practical brother Mordecai) kept him from accumulating a substantial bank account; the emoluments of a big practice meant a little to him.

He had been engaged for several years to

"Lou" Troth, when Professor William Goodell gave up the Preston Retreat (a large endowed obstetric home), and Price's name naturally at once came up for consideration. But the holder of the position must be married!—The opportunities offered in the Retreat for obstetric experience were unsurpassed, the salary was large, and with it went a big, comfortable house and grounds, the concession of office hours and an outside practice, provided the institution was duly cared for. Price's candidacy was settled in the happiest manner by immediate marriage; he was elected and filled the post with zeal and success from 1887 to 1894. The issue of the marriage was three daughters and four sons, none of whom studied medicine.

With C. B. Penrose he was the founder of the Philadelphia Gynceean Hospital (incorporated January, 1888), in which he was succeeded by Penrose and J. M. Baldy. Later he abandoned the Gynceean and opened a large private hospital with Dr. J. W. Kennedy.

He was president of the American Association of Obstetricians and Gynecologists in 1895, and one of the staunch supporters of and contributors to the proceedings of this honorable body of specialists.

Price's great subjects for operation or for a paper before a society, or for a debate, were "Pus in the Pelvis," "Extra-uterine Pregnancy," "Early Ovariectomy," and "Fibroid Tumors"; the vermiform appendix came in, too, for a large share of his attention. When he was known to be in attendance at a meeting, men flocked in and filled the room and crowded the aisles to enjoy his vigorous, spicy discussions; at first somewhat interrupted and hesitant in his speech, he soon warmed up as he felt the sympathy of his audience, until, like Stonewall Jackson dashing at the head of his troops, he carried friends and foes alike with him, as he graphically depicted the lessons drawn from his large experience, and caustically flayed his opponents.

His aggressive militancy for what he held to be the best interests of abdominal surgery is well illustrated by the following story, related to me by Dr. Charles H. Mayo, an eye-witness. While Price and his associates in Philadelphia were zealously saving lives by their brilliant operations, a competitor was vaunting his simpler, safer cures of the same conditions by the Apostoli electric treatment. Price soon

"camped on this trail," as we would express it, and closely followed his work over a series of months, or it may have been for several years. The electro-therapist finally announced a paper on his methods before the College of Physicians of Philadelphia. Price significantly asked Dr. Mayo, then visiting him, to be present, as the meeting "was likely to be interesting." Before the hour a dray drove up to the hall and a great number of jars containing big and little tumors and specimens were unloaded and deposited on a long table in front of the speaker's desk. Then followed Price, who took a little pad out of his pocket and busied himself writing slips and attaching them to the jars. The electro-therapist read his paper and cited the numerous patients cured by his conservative methods. Whenever the initials were given Price put additional notes on the slips on the jars. The denouement came when the subject was thrown open for discussion. Price arose, one by one named the cases cured and then exhibited the morbid specimens he had afterwards removed from the patients; a big fibroid cut open to show the streaks of the intense cauterization, and the fact that the growth was uninfluenced; in another case he demonstrated that the needles had penetrated the uterine wall at a point remote from the growth; another patient had acquired "a vicious intestinal adhesion," jeopardizing the operation. The tubes of a "cured" pelvic inflammatory mass were picked up and incised and the pus flowed out. The effect was so crushing that the adversary had the pity of the hearers, but therapeutics were annihilated and electro-therapy received its death blow.

Bitter and unrelenting as a foe, Price was generous to the extreme to friends. He had not the habit of mind for the writing of a scientific or a technical paper, but he saw with prophetic vision the next great steps to be taken in surgery; he grasped them himself and then turned round to pull the rest of the world up to his standpoint, and before he quitted the scene, everyone had in fact gone his way.

One of the most difficult, nay the impossible, tasks of a biographer, is to grasp and depict such a personality and to measure the influence of a man like Joseph Price, and yet, as great pioneers, such men as he and his brother Mordecai often accomplish more for humanity than many who have poured forth much wisdom

from the laboratory. Alas, the aroma of such a life is evanescent and the pen is inadequate to draw the picture. Those who knew him well chuckle or grow pensive and sorrowful as they recall the talks and the walks and the tours and the operations in which they have been associated with him, and one and all are apt to end up with, "Dear old Joe, I wish he were here now"; those who came on the scene later can never know him.

Price died of an infection (to which he was ever liable), a universal retro-peritoneal involvement of all the glands in the abdomen, so that, in spite of his hurry call to his follower, J. W. Kennedy, to operate, he passed out of the field of his great labors, June 6, 1911. He received the honorary degree of LL.D. from Union College but a month before his death.

There is a good portrait in his biography by Dr. Kennedy in the *American Journal of Obstetrics* for January, 1912.

HOWARD A. KELLY, M.D.

Book Reviews.

Cancer and its Treatment. By DUNCAN BULKLEY, A.M., M.D., Volume ii. New York: Paul B. Hoeber. 1917.

This volume deals primarily with the basic causes of cancer. The author believes that the cancer problem will not be solved by increasing surgical activity, but through a more careful investigation of its medical aspects; more laboratory study is necessary in order to determine more definitely the metabolic and blood conditions which lead up to cancer. The fundamental principles on which dietary and medicinal treatment and prophylaxis are to be based, are more fully developed, and more data are furnished in this book than in volume one. This work includes lectures on the following topics: cancer as a medical or surgical disease; the influence of sex, age, occupation, race, climate, and food on cancer; the mortality from cancer and an analysis of surgical statistics; inoperable and recurrent cancer, metastases, the blood in cancer; dietetic and medical treatment of cancer; prophylaxis. The author believes that results are given. The author believes that erroneous nutrition is in a large measure responsible for the increase in the morbidity and mortality in cancer, in spite of intelligent surgical treatment; that cancer is a systemic disease of which the tumor is but a local expression; and that satisfactory results can be obtained by dietary and medical means, by a vegetarian diet, perfect mastication, exclusion of

alcohol, and by leading a very simple and healthy life. The results of the author's experience are satisfactory, and, inasmuch as the death rate due to cancer has increased 27.7% between 1900 and 1915 under surgical treatment, this incentive to further study and development of medical treatment is most valuable and timely.

Physical Remedies for Disabled Soldiers. By R. FORTESCUE FOX, M.D. New York: William Wood and Co. 1917.

A valuable contribution to the problem of restoring the wounded soldier is offered by this book, "Physical Remedies for Disabled Soldiers." It is a practical survey of the physical methods which may be utilized in the treatment of wounded and invalid soldiers. The book emphasizes the efficiency of physical agencies—fresh air, the sun, heat, cold, wind and water—in curing local injuries and infective or nervous disorders. The work is divided into three parts. The first part deals with hydrological remedies and the indications for their use; remedial baths, and indications in surgical cases, in specific fevers, in nervous, cardiovascular and digestive disorders, and in rheumatic affections, are given. Part two discusses mechanical and electrical remedies. Part three deals with the problem of provision for physical remedies, and the opportunities provided by hospitals and physical clinics. The importance of work as a remedial agent is discussed. The results already achieved at the British spas, and the further possibilities of British marine resorts and climate are mentioned.

Modern Dietetics. By LULU GRAVES. St. Louis: Modern Hospital Publishing Co. 1917.

"Modern Dietetics" is an example of the spirit of progress which is being manifested in the study of the physiological and pathological aspects of nutrition. It offers to hospitals the valuable suggestions of a trained dietitian whose services are indispensable to the interests of medicine. The book deals with the problem of managing the institution commissary, proper methods of buying and storing, scientific preparation and methodical distribution. The food value of various products—milk, butter, vegetables, cereals, breakfast foods, fruits, coffee, poultry, eggs, meats, fish and oysters,—and methods of preparation are given. Special diets are furnished for disease and for various classes of people. Training school work, from both the theoretical and the practical standpoints, is discussed. This volume includes, also, the Atwater tables, prepared by the United States Department of Agriculture, and some selected recipes for hospital use. This book is of value to physicians, medical students, hospital administrators, dietitians and nurses.

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DEDICATION OF ELKS' HOSPITAL.

THE first great hospital built in the United States for the reconstruction of disfigured American soldiers and sailors was formally dedicated on November 16, on Parker Hill, Boston. Just at a time when the nation is beginning to think of peace and the return of her fighting men to civilian life, the dedication of an institution of this sort is peculiarly fitting. Several injured soldiers and sailors now distributed in the hospitals of Greater Boston will be transferred to the new building within a few weeks, and the work of making the men physically fit will be started under direction of physicians and nurses especially trained. Those members of the fighting forces who are disabled and unable to reënter commercial and industrial life will be reconstructed so that they may be educated to use their remaining members to advantage.

The Elks' reconstruction hospital was

erected at the cost of about \$300,000, and is the first of several which the Benevolent Protective Order of Elks intends to build from a fund of \$1,000,000 raised by the lodges throughout the country. It is situated on the highest point of Parker Hill. The buildings are connected by tunnels with the Robert B. Brigham Hospital, which will supply heat, light, and kitchen and laundry materials. There are seven wards, each having thirty-four beds. An eighth ward is subdivided into seven private rooms for commissioned officers. The administration offices and halls are in the center building. There is a shop building, where soldiers and sailors will receive instruction in numerous trades while the reconstruction of their physical defects is being made. The methods applied to restoring the crippled men to active usefulness which will be used at the hospital are taken from the French, who have been unusually successful in rebuilding the crippled.

Members of Elk lodges from all parts of the country visited Boston for the dedication ceremonies. John K. Tener, former Governor of Pennsylvania, and chairman of the Elks' War Relief Commission, presided at the exercises. The Government was represented by Major-General William A. Crozier. Grand Exalted Ruler Campbell is reported to have said in part:

"The building of this hospital is one of our contributions to meet our new duties and circumstances. Although a result of the war, it is not a preparation for war, but for peace.

"Some three million men will soon cease being soldiers and become peaceful citizens; many of them have been wounded or weakened by sickness and will not be able to resume the vocations and trades of the pre-war period. Toward these particularly we have a duty to perform. The duty is fourfold, *viz.*: Their physical construction, vocational training in order that they may become useful citizens, proper attitude of the public toward them, and proper attitude of the soldiers toward the public.

"A part of that work will be done here. Within these walls there will be, in many cases, either in part or in whole, the physical reconstruction of the body. Where disability prevents the return of the soldier to his former vocation or occupation, he will be given a new one in order that he may be a useful citizen of the Republic."

"SHELL SHOCK": A NEW POINT OF VIEW.

WE have recently received through the courtesy of Dr. Henry R. Stedman, a copy of the *Weekly Bulletin* No. 20, issued from the office of the Chief Surgeon of the American Expeditionary Forces in France, August 26, 1918, and distributed by the War Work Committee of the National Committee for Mental Hygiene in New York City.

This bulletin aims to present a new point of view with reference to "shell shock," pointing out that "shell shock" is not a medical term, that preventable disease is not all of bacteriological origin, and that much of the sick wastage in armies is due to infected thoughts and careless words.

"In spite of the fact that the circular regarding sick and wounded reports states clearly that the term 'shell shock' will not be accepted as a diagnosis of disability or death, it is still being used by medical officers in many tactical divisions and base hospitals. As everyone now knows, the prevalence of the war neuroses in an Army is in our own hands nearly as much as the control of infectious diseases. There are measures which tend to suggest functional nervous diseases and there are others which tend to prevent them. It is the duty of medical officers to try to prevent mental and nervous diseases, as well as communicable ones of infectious origin, and there is no excuse for suggesting permanent or semi-permanent nervous invalidism to a man suffering from concussion or exhaustion by using the term 'shell shock' on his diagnosis tag or field medical card. If the medical officer thinks that a man has been 'concussed' or is physically exhausted he should say so, and if he thinks that the soldier is suffering more from nervousness than from concussion or exhaustion he should say so by using the terms provided in the nomenclature of diseases or the symbol, 'N. Y. D.' followed by 'nervous' in parentheses. Many a good soldier is being lost to the front lines through carelessness in this matter, for few men can withstand the suggestion of disease when that suggestion is made by those whom they rightly regard as authorities in medical matters.

"The control of war neuroses is one of the great new medical problems of this war. Those directly responsible for dealing with the prob-

lem are working hard to minimize those disorders in the A. E. F., but they need the help of every company and regimental medical officer and every man on the staff of a base hospital. Do not use the term 'shell shock' yourself, either in reports or in conversation, and do not permit nurses and hospital corps men under your direction to use it. It is not a medical term, but a piece of military slang which applies to a large group of conditions; a name which is descriptive of only a small proportion of all cases. It is not permitted in the British or French armies nor in the armies of our enemies. To discontinue using it shows a desire to preserve man-power, to be accurate and clear in medical nomenclature and to follow regulations framed after thoughtful consideration; to continue using it shows clinical slovenliness, disregard for regulations and indifference to the preventable wastage of man-power. This is a little thing, but so was the nail for lack of which the horseshoe, the horse, the rider and a kingdom were lost. During the recent severe fighting around Chateau-Thierry a large number of soldiers were sent into the S.O.S. with the diagnosis of 'shell shock.' In cases where division psychiatrists were allowed to work at sorting stations, more than half of the cases who came back from the lines from this diagnosis were returned to their organizations. Of those who had to be sent farther back, about half were successfully treated in a few days in field hospitals. In most cases, however, division psychiatrists were required to assist in dressing surgical cases, while hundreds of able-bodied men of their divisions were being sent through field hospitals to hospitals in the S.O.S. with a diagnosis of 'shell shock.' The psychiatrists could have been better used saving men from the fear of nervous disease by immediate estimate of their condition and prompt return to duty."

The idea contained in this communication is quite new, at all events, in this country. It gives a light on "shell shock" and allied nervous phenomena which is original, interesting, true and important. It was Dr. Oliver Wendell Holmes who originally pointed out the suggestive influence of what he termed "polarized" words. The same phenomenon may be observed in the influence exerted by certain medical or pseudo-medical terms upon suggestible or psychoneurotic patients.

DISTINGUISHED SERVICE CROSS AWARDED BOSTON PHYSICIAN.

WE have recently received information that the "Distinguished Service Cross for extraordinary heroism in France has been posthumously awarded to Lieutenant George P. Howe, M.C.U.S. Army, Boston, who was killed in action, September 28, 1917." This is a worthy tribute to the first Boston physician who was killed in the war service.

MEDICAL NOTES.

PETER BENT BRIGHAM HOSPITAL.—The Fourth Annual Report of the Peter Bent Brigham Hospital, for the year 1917, has just been issued by the University Press. All the departments are affected by the war conditions. Dearth of candidates and consequent difficulty in filling vacancies have made it seem wise to elect women as house officers and members of the staff, but in spite of all the difficulties encountered, the hospital has been able to keep up its efficiency and high standards.

It is of interest to note that the Social Service Section has done a great deal for the outdoor patients in securing permanent or temporary homes for convalescents, and in adjusting misunderstandings between schools, homes, and the hospitals.

At the request of the Red Cross Nursing Service, a 72-hour course for nurses' aids, open to those who have passed a satisfactory examination in certain classes given by the Red Cross, has been inaugurated. Miss Hall, superintendent of nurses, has taken charge of a unit of nurses going to France with University Base Hospital No. 5. The Pathological Department lays emphasis upon the continuation of research as a fundamental requisite toward progress. This department has felt very keenly the lack of sufficient aid in the maintenance of efficient routine. This lack of experienced and trained assistance is especially felt in the Surgical Department, which requires experienced men for operative therapeutics and after-care of cases. However, the number of surgical admissions in 1917 was 1,942 as compared with 1,787 in 1916. An account of the fatalities is incorporated in the report. The Physician-in-Chief is particularly desirous of installing a hydro, thermo, mechano-therapeutic department with proper equipment to as-

sist in the reëducation movement for the wounded.

The classes in cardiac, diabetic and renal diseases were continued and instruction and care given to a number of patients in this way. Owing to the gift of Mr. Charles F. Choate, the knowledge of bronchial asthma was greatly increased and cures were effected in a number of cases.

WAR NOTES.

PREPAREDNESS LEAGUE OF AMERICAN DENTISTS.—More than 650,000 free dental operations were performed by members of the Preparedness League of American Dentists prior to November 1. All this work was done on men drafted for military service, but who were, in many instances, dentally unfit for military duty. Members of the League are located in every State in the Union and in many instances have made individually several hundred men dentally fit for service.

WAR RELIEF FUNDS.—On November 19 the totals of the principal New England War Relief Funds reached the following amounts:

Belgian Fund	\$718,296.93
French Wounded Fund	438,256.83
Armenian-Syrian Fund	315,292.97
Italian Fund	226,142.22
LaFayette Fund	44,177.41
British Fund	19,796.83

DEATHS FROM INFLUENZA IN THE SERVICE.—

The War Risk Insurance Bureau has estimated that the number of deaths caused by influenza among soldiers and sailors has amounted to 18,000 in this country alone. At the present time, however, the epidemic appears to be checked. Figures for the week ending November 8 show 6,887 cases as compared with 18,175 the previous week. The progress of the epidemic is being checked also in the West, the last section to be affected. Marked improvement generally was shown in the Surgeon General's weekly report in regard to the pneumonia situation.

A mild epidemic of scarlet fever was reported at Camp Hancock, Georgia, with fifty-one cases during the week.

724 SICK AND WOUNDED AMERICAN SOLDIERS HOME.—The total number of sick and wounded

men landed in the United States from the American Expeditionary Forces for the week ending November 8 was 724.

SPRINGFIELD ACADEMY OF MEDICINE.—The November meeting of the Springfield Academy of Medicine was held in Springfield on the evening of November 12. A new treasurer was elected to take the place of Dr. A. G. Rice, who has entered the Army. An address, "The Present Epidemic of Influenza Among Children," was delivered by Dr. Fritz B. Talbot of Boston. **DR. L. D. CHAPIN, Secretary.**

DR. DONLAN IS REINSTATED.—Dr. Charles E. Donlan, superintendent of the Boston Almshouse and Hospital on Long Island, who was removed last summer by order of the Boston Infirmary Trustees, has been restored to duty. Judge Murley, of the East Boston District Court, found that the order for his removal was made without proper cause.

Dr. Donlan assumed charge of the Long Island Hospital and Almshouse May 2, 1908, succeeding James F. English.

He received his degree in medicine from Harvard in 1898. He has made two trips to Europe, in 1899 and 1905, for the purpose of study in advanced medicine and sociology.

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 16, 1918, the number of deaths reported was 230 against 223 last year, with a rate of 15.29 against 15.06 last year. There were 25 deaths under one year of age against 32 last year.

The number of cases of principal reportable diseases were: Diphtheria, 38; scarlet fever, 22; measles, 4; whooping cough, 8; tuberculosis, 37.

Included in the above, were the following cases of non-residents: Diphtheria, 5; scarlet fever, 2; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 3; tuberculosis, 21.

Included in the above, were the following non-residents: Diphtheria, 1; tuberculosis, 3.

Influenza cases, 71; influenza deaths, 27, of which four were non-residents.

INFLUENZA AND PNEUMONIA IN BOSTON.

Cases Reported and Deaths by Date of Death from Sept. 7, 1918, to Sat. Noon, Nov. 9, 1918.

DATE	CASES REPORTED		DEATHS REPORTED		TOTAL DEATHS
	Lobar Pneumonia	Influenza	Pneumonia All forms	Influenza	
Sept. 7			3		2
8			3	2	5
9	3		4	4	8
10	3		7	2	9
11	8		5	3	8
12	2		7	8	15
13	3		12	4	16
14	7		20	11	31
15			9	15	24
16	13		14	29	43
17	20		10	28	38
18	22		7	44	51
19	22		18	53	71
20	21		21	54	75
21	23		22	54	76
22			19	77	96
23	48		30	97	127
24	49		31	93	124
25	35		29	121	150
26	51		33	129	162
27	55		27	135	162
28	40		31	140	171
29			47	131	178
30	63		47	120	167
Oct. 1	43		30	162	192
2	30		22	188	210
3	37		36	152	188
4	22	*25	29	142	171
5	41	90	25	143	168
6	23	104	23	132	155
7	8	77	23	122	145
8	31	179	19	100	119
9	16	295	24	90	114
10	14	265	23	89	112
11	19	280	20	92	112
12	11	320	17	87	104
13			18	77	95
14	6	312	22	56	78
15	27	387	17	40	57
16	8	249	10	41	51
17	33	99	7	47	54
18	13	67	13	36	49
19	18	74	8	26	34
20			13	23	36
21	14	85	5	31	36
22	12	105	5	13	18
23	10	21	6	22	28
24	3	32	6	21	27
25	2	35	3	12	15
26	2	26	6	9	15
27			4	16	20
28	6	61	9	17	26
29	1	15	9	8	17
30	23	43	1	17	18
31	12	25	4	3	7
Nov. 1	3	42	5	7	12
2	6	14	1	8	9
3			3	6	9
4	1	20	3	6	9
5	1	15	4	9	13
6	3	2	1	10	11
7	0	15	3	4	7
8	5	12	1	3	4
9	5	8	0	0	0
Total	997	3399	933	3421	4354

* Influenza reportable since Oct. 4, 1918.

DISTRICT NURSES' WORK IN OCTOBER.—Nurses of the Instructive District Nursing Association of Boston have had 5,439 new patients in October, and 39,690 visits were made. In October, 1917, 1,441 new patients were taken on and 15,713 visits were made. The increase is due to the influenza epidemic.

\$100,000 BEQUEATHED TO LAWRENCE HOSPITAL.—By the will of Morton F. Plant, \$100,000 has been bequeathed to Lawrence Hospital of New London.

EPIDEMIC RETURNS TO LAWRENCE, MASSACHUSETTS.—Influenza cases are being reported at the local Board of Health in Lawrence in such numbers that it is feared that it may be necessary to put a ban on public gatherings again. During a period of 24 hours, the number of cases discovered by physicians and nurses throughout the city numbered fifty, which is as high as certain days during the epidemic of several weeks ago.

RUTLAND SANATORIUM IN NEED OF MONEY.—Dr. Livingston Farrand, director of the American commission for the prevention of tuberculosis in France, has made an appeal to the people of the United States urging them to use every measure to combat tuberculosis. He has asked them to work with as much zeal for eliminating this disease as for the destruction of Prussianism.

The Crane sanatorium, which is being erected in Rutland, Massachusetts, is immediately needed for treatment of patients of moderate means who do not desire to enter state or municipal institutions. The federal bureau of war risk insurance, which finds difficulty in obtaining adequate accommodations for discharged soldiers and sailors, has stated that it "can make the most ample use of it."

Further subscriptions for this sanatorium—at least \$10,000 a month for the next four months—are necessary to hasten its construction. They may be sent to Leonard W. Cronkhite, treasurer, care of the Merchants National Bank, Boston.

FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION.—A thorough investigation of sanitary conditions has been made in the development of the Framingham Community Health and Tuberculosis Demonstration

program. Monograph No. 3 deals with the statistical phase of the sanitary survey and covers a period of ten years. The study presents the following main conclusions:

There is a close correspondence between the local and national mortality statistics. An analysis of mortality for five years indicated that the tuberculosis death rate was probably twenty-two per cent. greater than the actually recorded rate. The community is growing rapidly, particularly in the lower age groups and among the foreign born. There has been no marked improvement in the mortality rate during the last decade. The leading causes of death are organic heart disease, Bright's disease, cerebral hemorrhage, pneumonia, cancer, and tuberculosis, in the order named. Tuberculosis and infant mortality present the best opportunities for attack upon the mortality rates. The less prosperous districts have markedly higher general death rates, a fact which indicates the importance of the economic factor and the need for special effort in disease preventive work in the poorer districts.

NURSES GRADUATED AT PETER BENT BRIGHAM HOSPITAL.—On Thursday evening, November twenty-one, the graduating exercises of the School for Nursing of the Peter Bent Brigham Hospital were held. A reception followed the exercises.

Obituary.

HARRISON BRIGGS WEBSTER, M.D.

MAJOR HARRISON BRIGGS WEBSTER, a regimental surgeon in the 47th Infantry, was killed in action in France on October 7. Major Webster is the second Boston physician to lose his life in war service. He was the son of Andrew G. and Florence Briggs Webster of 191 Commonwealth avenue. He prepared for college at Noble & Greenough's School. He was graduated from Harvard with the class of '05 and then attended Harvard Medical School, from which he was graduated in 1909. He went to Plattsburg, and was then sent to a medical camp at Fort Benjamin Harrison at Indianapolis, Ind. He went overseas last May.

After his graduation from medical school Major Webster spent two or three years with

Dr. Grenfel in his Labrador mission, and then went to Castine, Me., where he practised for a time. He is survived by his wife, who was Miss Margaret Gleason of Northampton, and three children; also by one brother, Captain David Webster, who is in the aviation service at Hampton, Va.

Correspondence.

MOBILIZING THE MIND.

Warwick, Mass., November 11, 1918.

Mr. Editor:—

Mistakes will happen in the best regulated families. The war emergency organizations are no exception to the rule. Fully one quarter of the physicians are in active service. As the younger and most vigorous of the profession are so enlisted, the potential energy of the remainder left to serve in their home fields is very far from 75%. An extraordinary epidemic breaks out: the home guards are inadequate to meet the demands in the congested towns. Mobilization of physicians from the outside is necessary. The State health boards through the U. S. Public Health service makes use of an organization but a few months old to draft temporary medical help. Some far seeing leaders of the National Council of Defense, Medical Section, had started the Volunteer Medical Service Corps and though this had seemed to many as an unnecessary endeavor, the U. S. Public Health service was very glad to be able to turn to it for men to serve in the influenza epidemic.

Several lessons may be taken from the following communications in the columns of a local paper which show how the lime light is thrown upon the possible or actual indiscretions of a doctor in such a way as to very much overshadow in the minds of the public his actual and intentional efforts to serve and minister in a strange field.

"GRIEVED AT REFERENCE TO DOCTOR."

"Editor of the ————:—

"In your issue of first instant I note the following item:

"Depressing and regrettable as were the consequences of the influenza epidemic in ———, the period of four weeks was not without its humorous side. Some strange experiences took place which, though irritable and deplorable at the time, are now the cause for considerable merriment among the nurses and townspeople. Much of it resulted from the actions of one of the emergency doctors whose coming was as sudden as his departure was welcome. It cannot be said that his work was very creditable to the medical profession, and the local authorities promptly dispensed with his services."

"Whatever may have been the 'consequences' of the influenza epidemic, the maligned doctor did not add to its fatalities. The accusations contained in the item are too serious and reflect too much upon the ingratitude of our town to be 'humorous.' It is indeed regrettable that there is even one individual in the town of ——— so base as to publicly slur or slander, or cast the slightest reflection upon the work, or person, of any of those who gave help and assistance in our time of need,—no matter how exalted or humble the service rendered.

"The doctor referred to came in response to a telegram sent to the Emergency Health Board, by the writer, upon request of Dr. ——— for an assistant. While the 'emergency' doctor's voice may not have

been so soft, or his language and manner so gentle and refined as to make his ways and treatment of patients the ways and treatment which some of our omniscient cast-in-the-mould nurses may have desired, nevertheless, in the language of one of our old-time citizens, he 'never lost a case.'

"Most of the families visited by the so-called discredited member of the medical profession were those furnished him by Dr. ———, and I am authorized by the latter to say that he is in entire accord with the medicines prescribed, and the treatment rendered by the man, who gave up his practice in N. Y. City, offered his services to the U. S. Government, and was sent to us to aid, help and assist in the time of our distress.

"I do not believe the ingratitude apparent and intended in the article to which I am making reply, represents the majority sentiment of the citizens of this town. Permit me to add that no patient, no member of any patient's family, no nurse or no doctor, although requested by me to do so, did or would make any complaint, in writing, against this emergency doctor, who was so much despised and so much criticized by some of his co-workers.

"In closing, I would esteem it a great favor to be privately informed (if my informant prefers not to make the matter public) what local authorities, if any, were instrumental in dispensing with the alleged objectionable doctor's services."

"Editor's note: It is to be regretted that the article in our last issue of November 1st, referred to above, should have occasioned such an outburst. So far as the doctor in question is concerned, little comment need be made. All who came in contact with him are judge of his fitness. Those prominent in the visiting nurse association were so disgusted with his attitude that complaint was entered with the State authorities. Prescribing a chew of gum for a patient critically ill, refusing to take asepsis precautions in confinement cases, using language that was hardly proper and showing a questionable attitude toward lady nurses are actions which we believe discreditably to the profession. Perhaps we are wrong! A good majority in town have been less concerned about who fired him as to who hired him."

The writer has a considerable acquaintance with the town above referred to and among its people. He has no acquaintance with the doctor in question. In writing this there is no desire to defend misconduct. We all realize that well intentioned "jollyng" will not be taken in one place as it will be in another. The differences between a metropolitan trained mind and a rural or near rural bred one are most radical. The home of the former is constantly receiving every kind of race, person, character, idea, habit, practice, etc., and giving to the same more or less of recognition and protection. In the small or provincial town, dominating characters become so entrenched that the inhabitants become, perhaps unwittingly, polarized in very acts and habit of thought to speaking or thinking with a deference or salaam to the selfish interests of those few. Greed makes use of jealousy and minor human traits and weaknesses of character to guard its prerogatives. The small town has essential autocracy. Whatever is foreign or novel to its own limited tradition and custom is looked upon very suspiciously. It has a very real method of censorship and the presence of an alien means a possible menace to the established order and is sure to arouse animosities and hatred.

The lumberjack pent up through the winter in the woods can't restrain himself when he gets to "town." Even the visitor from the small town when he gets to the city gives himself a rather generous rein in "seeing the sights" as he feels "no one is any the wiser" back home. Many a professional or business man takes a debauch, justifiable or otherwise, by going into the country to hunt, to fish, for diversion, wholesome or unwholesome. His overwrought or overtaut nerves undergo such a relaxation under the changed environment that ordinary intellectual pro-

cesses, discriminations, perceptions are swamped by the flood of and the appeals to the sensual side of him. To illustrate this matter of release from tension upon a plane that affects us all. For almost four years and four months, the world body has been under the strain of war. Today official announcement is made that the great enemy has practically surrendered. Men and boys cannot work and think but are giving way to yelling and irrational impulse. From here the constant tooting of whistles can be heard at distances of from 7 to 10 miles taking their part in "blowing off steam." These are rather obvious examples showing the reaction when long continued conditions provoke a state of tenseness physically or temperamentally, and when a real interruption is allowed.

A doctor from one of the most tolerant city atmospheres is assigned to help out in a factory town where a pseudo-puritanism and a topography (rocks and hills) have inbred and crystalized intolerance. He had the scientific training adequate to fight disease and germs of the physical type usual to one of his professional standing. He probably had sufficiently that art of practice and adaptability which at the time he started his professional work, would have easily acclimated him to such a stony mental field, but his years were against him. He was to do what he could in the most comfortable way he could. There was humor to the situation upon his side. For various reasons New York City was able to furnish a conspicuously large number of men for this volunteer medical service, men not so adaptable for the Medical Reserve Corps, but whose motives for a near war experience may have been as laudable as those able to go into the real one. The contrast between the smooth running machinery of a health organization in a large city and the same of a small town is most striking, and when such an epidemic overtakes the latter, its weakness is shown up.

With all the hardships and strangeness, the experience in the army and at the front has its physical and mental phases which are refreshingly recreative. Why then should not these New York men going out so, take a somewhat vacation viewpoint of their experience. Nature keyed up will let down when given a chance. The army has safeguards for checking up men on duty, but here was a situation unforeseen where organization was inadequate. Our profession is well organized to make a good showing in fighting physical germs in their most favorite nesting places—the large cities and towns. The mental atmosphere of such places affects no serious injunction against such warfare. However, as one departs farther and farther from congested areas, skepticism regarding the most modern and the approved enters in. Much of the scientific readily accepted in districts near to the most active and progressive centres gets hashed up with the tradition and customs of a place distant or isolated. Now a man coming into such a field for such a short period has little opportunity to analyze such local temperament and environment. The physical air is refreshing and relaxing to his nerves, the mental atmosphere is a puzzle and may seem cold and forbidding and be quite a test to his professional good nature. His affidavits of standing and ability are not proof against what local jealousy may do to undermine his best conduct. He deserves in this situation extra consideration and encouragement. If he is not made to feel welcome and at home, he feels lonely; and any weakness of disposition or habit is likely to be shown up or aroused. Again, the Medical Service Corps is filled with the more adaptable and vigorous of the profession and has a system of props which has been worked out through a long period of time, to hold the men in place, while here was an organization hastily constructed to meet contingent needs and calling for volunteers from the medical men left. Undoubtedly the collective experience of the few hundred men mobilized for this volunteer service

could be made a valuable contribution to medical annals.

The army must adapt itself to the latest scientific procedure in medicine as it does to all that is new and progressive in the enginery of warfare. The army surgeon devotes more time to a practical form of health insurance for the efficiency of the soldiers than does the medical man at home for the civilians. Army life means preparation for and adaptation to various localities and environments with all their topographical and climatic differences. A rolling stone gathers no moss and many of the enervations of an army in peace are lost during the mobilization for war. Though many pacifists may have feared that this war would develop hatred, prejudices and animosities, the ultimate results will undoubtedly show victories for more brotherly feelings between nations and for tolerance in spirit and vision. It is sincerely to be hoped that such a wholesome ferment now working between races and peoples in these large units will percolate down to the smaller ones—that isolated communities and districts, individuals may mobilize to healthier spiritual planes and zones.

PAUL W. GOLDSBURY, M. D.

GRIPE AND NASAL SINUSITIS.

541 Commonwealth Avenue,
Boston, Massachusetts.

Mr. Editor:—

In a paper entitled "Shall We Never Learn?" Dr. Lewis of New Haven does me the honor of mentioning in his references a paper of mine entitled "Epidemic Nasal Sinusitis; 'Influenza' and 'Grippe' Its Misnomers," *Medical Record*, May 26, 1917. The major part of Dr. Lewis' paper is an appeal to reason, for reason in the handling of so-called gripe epidemics. With this theme I can heartily agree, as I made a similar appeal as early as 1916, in the month of January. There is, however, a minor chord in his paper, which I do not like. I speak of his classifying his references as confirmatory material of something which he had previously written, but which he catalogues as "disjointed and lacking basic formation." Passing over the question of time, as to which one of us is affirmatory, and which confirmatory, I come to his statement that the collected evidence is "disjointed and lacking basic foundation."

If this were an unanimous verdict it would give me pause, but coming from Dr. Lewis, "walking alone," I do not accept it. Parallaetic displacement on this, as on every human question, depends on the point of view. Dr. Lewis sees the question of "grippe" from the standpoint of an epidemiologist, I, from that of the rhinologist. Primarily, he deals with communities, I with individuals. Our work is necessarily interdependent. At times we will enter each other's domain. We will often agree. We must never disagree. This demands recognition of the fact that neither of us knows it all. For my part, I am always open to conviction. *Per contra*, I wish to object to a point or two in Dr. Lewis' paper, which are evidently due to his misconstruction of mine. He has no right to draw the inference that my paper suggests that epidemics of "grippe" start from cases of chronic sinusitis alone, because while I am convinced that they may, I know that they actually start as a rule from acute cases.

My second objection in this paper is the writer's allusion to an "innocuous watery head cold." I do not recognize such a condition. I call it what I believe it is. An acute mucous sinusitis dependent for its virulency on the infecting organism.

Dr. Lewis will admit the distinction between a serous and a purulent meningitis. Why be single tracked on the nasal sinuses?

Without adding or subtracting a word, all these distinctions can be found in my article in the *Medical Record* of May 26, 1917. Furthermore, I said at that time, "that as long as the nasal sinuses escaped, the clinical picture of 'grippe' would be wanting."

In this epidemic the nasal sinuses did apparently escape, the clinical picture was lacking in something, and we had to invent the adjective "Spanish." But this escape was only camouflage. The sinuses did not escape. We had a sinusitis, which was not a suppurative one. That is all. Let me use the form of proportion to describe my view of the situation.

Acute mucous sinusitis; Acute suppurative sinusitis; Spanish influenza; influenza.

Or in other words. An acute mucous sinusitis, caused by a high grade bug of exceptional virulence, which did not stop to make pus in the sinuses, but which was carried off by the upper set of deep cervical lymphatics, retro-pharyngeal (witness reddening of pharynx and larynx) to thoracic duct, subclavian, right heart, lung, left heart, to the general circulation. Hence the pneumonia and septicaemia.

Treatment. If this view is accepted the treatment must be altered. Antiseptic douches are objectionable for more reasons than one. From the standpoint of otology they are dangerous. If strong enough, they are destructive. If too weak, useless. They are irrational as they only flush the overflow, and do not attack the factory or source. These patients were profoundly septic. They did not lend themselves to travel in an ambulance. The pneumonia masked the real story—which was sepsis. And the treatment of sepsis indoors or outdoors, is diuresis, diaphoresis, catharsis, support of the heart, and last but not least the cleaning up of the focus, in this case the nasal sinuses. This last is a mechanical problem for which we have only two remedies: 1. Cocaine and adrenalin; 2. Surgery.

Yours for reason.

JOHN J. HURLEY, M. D., F. A. C. S.
November 16, 1918.

COLLECTION OF SCRAP PLATINUM

War Industries Board, Washington.

November 13, 1918.

From: Mr. Charles H. Conner, Chief, Platinum Section, and Lieut. Col. F. F. Simpson, M. C., U. S. A., chief of Section of Medical Industry.

To: The Doctors and Dentists of the Country.

Subject: Cancellation of Appeal for the Collection of Scrap Platinum.

1. The Platinum Section and the Section of Medical Industry, War Industries Board, desire to express appreciation of the hearty response made by physicians, dentists and others when the call for scrap platinum was made.

2. As the Governmental demand for platinum in the making of explosives, etc., has been tremendously decreased by the curtailed war program, it is requested that no further scrap platinum be tendered to the Government through the channels indicated in our communication of September 17th, 1918.

CHARLES H. CONNER, Chief,
Platinum Section.

LIEUT. COL. F. F. SIMPSON, M.C., U.S.A.,
Chief of Section of Medical Industry.

AMERICAN RED CROSS: SURVEY OF NURSES.

Boston, Nov. 21, 1918.

Mr. Editor:—

The American Red Cross has been asked by the medical authorities of the Government to make a survey which will include a registration of all women of the country who have had training or experience in nursing. Previous surveys about the nursing profession have been made, but they were not national in scope and the information secured from them is inadequate for the present and future needs of the government.

The purpose of the survey is to determine how many graduate nurses can be released for military service without detriment to the needs of the civilian population. There are many women in the country with some training and experience in nursing who can be used in an emergency, under proper supervision. This survey will reveal how many semi-trained women are available for this purpose.

The Boston Metropolitan Chapter of the Red Cross asks your coöperation in making this survey a success. Much work has already been done, but we need your assistance in locating nurses who are not registered.

Will you, therefore, be good enough to send me, as soon as possible, the names and addresses of the women, known to you, who are trained nurses or who can be depended upon to do intelligent nursing when the need arises? The questionnaire calls for information about graduate nurses, pupil nurses, ungraduated nurses, trained attendants, practical nurses, etc., and filling out the questionnaire is not a pledge of service.

Your interest and coöperation in helping the Red Cross to accomplish successfully its very important task will be deeply appreciated.

Faithfully yours,

(MISS) GUEN COOKE, *Executive Secretary*,
Nursing Survey, Boston Metropolitan Chapter.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The fifty-fourth meeting of the New England Pediatric Society will be held at the Infants' Hospital, 55 Van Dyke, Street, Brookline, on Friday, Dec. 13, 1918, at 4.30 p.m.

- I. The Treasurer's Report.
- II. The Report of the Council and Nomination of Officers.
- III. There will be a presentation of cases and discussion by

Charles Hunter Dunn, M.D., Boston,
William W. Howell, M.D., Boston.

- IV. Election of Officers.

CHARLES HUNTER DUNN, M.D., *President*,
RICHARD M. SMITH, M.D., *Secretary*.

RECENT DEATHS.

FIRST LIEUTENANT WILLIAM S. MORISS, M. D., of the United States Army, died recently after a short illness of bronchial pneumonia. Dr. Moriss was a graduate of Harvard College and of the Harvard Medical School. At the outbreak of the war, he enlisted in the Army Medical Corps, and had been stationed at Jacksonville, Florida.

ABBOTT LATHROP COOLEY, M.D., a graduate of the University of Michigan in 1897, and a Fellow of the Massachusetts Medical Society, died at his home in Chicopee Falls, Mass., October 28, 1918, of pneumonia.

ARTHUR HARDY CUTLER, M. D., died at his home in Methuen, October 4, 1918, of pneumonia. He was a graduate of Harvard Medical School in 1901 and was chief of the surgical staff of the Lawrence General Hospital. He was 45 years old.

The Boston Medical and Surgical Journal

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Original Articles.

STUDY OF BLOOD PRESSURE IN INSANE PATIENTS AGED SIXTY AND OVER.*

BY E. T. GIBSON, M.D., MIDDLETOWN, CONN.,
AND
A. M. KIMBERLY, A.B., NEW YORK.

THE observations of blood pressure recorded in this paper were made primarily to obtain standard values with which routine blood pressure determinations in patients aged 60 or over, at the Connecticut Hospital for Insane, could be compared. In addition to the obvious application to kidney, heart and blood-vessel disease, we wished also to measure the differences in arterial tension, according to sex, psychiatric diagnosis and the result of the Wassermann reaction. Finally, since the patients in this series had lived from a few weeks to 40 years in the hospital, the opportunity seemed a good one to find out how varying periods of residence in the regular and non-competitive life of the institution might affect the blood pressure.

Cases were chosen from an alphabetical card index with the conditions that the age should be 60 or over, and that the subjects should be up and about. The pressures were taken at

least two hours after meals by means of a mercury manometer, using the auscultatory method. At the same sitting the heart was examined by percussion and auscultation, the rate was observed and a general survey made for evidence of cardiac incompetence. The urine was examined as nearly as possible at the same time. Finally the history of each case was carefully reviewed for evidence of cardio-renal disease.

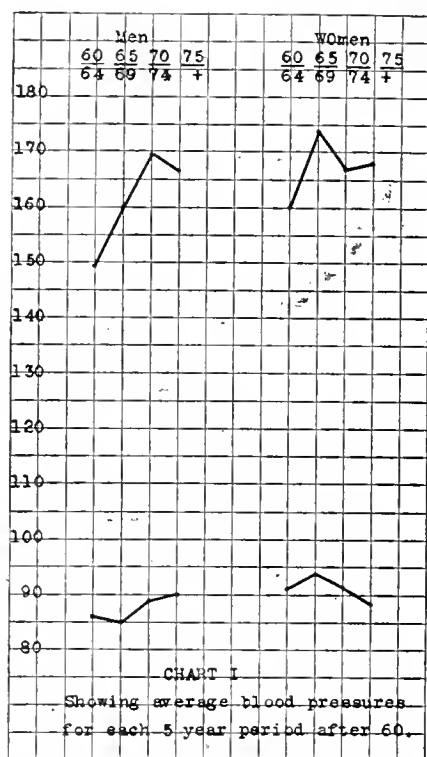
One hundred and sixty-three cases were found complete enough for use, eighty-two males and eighty-one females.

Blood pressures are expressed always in the following order, diastolic, systolic and pulse pressure.

Men.—Diastolic pressures are about the same for all men over 60, regardless of age. Systolic pressures and consequently pulse pressures are higher in the older men, the average readings increasing about ten units for each five years of age, up to 75 years.

Women.—Women whose age lies between 60 and 74 have all about the same diastolic pressure, which is approximately seven units higher than in men of the same age. In women aged 75 and more, of whom there are 20, the diastolic pressure is somewhat lower than in younger women. Systolic pressures in women under 70 were from 11 to 14 units higher than

* Read before the Central Medical Association, Middletown, Conn., November 12, 1917.



Relation of Blood Pressure to Age. (Chart I.)

in men of equal age. After 70 systolic pressures were the same in both sexes. In all women 65 and older the pulse pressures are about the same. They average about 10 units less in women from 60 to 64.

The averages of all the pressure readings are:

Men	87	160	73
Women	91	167	76

Relation of Blood Pressure to Cardio-Renal Disease.

Evidence of cardiac or renal disease was found in 46 of the men and in 41 of the women, that is in about one-half. Albumen and casts without apparent heart involvement were found in only 15 of each sex.

In the whole group of cardio-renal cases, the blood pressure averages were:

Men	87	161	74
Women	91	167	76

These are almost precisely the same as the averages for the entire group.

Relation of Blood Pressure to Wassermann Reaction.

The blood sera of 38 of the women and 68 of the men were tested by the Wassermann reaction. Of these four women (11%) and

fifteen men (22%) reacted positively. The average pressures of the men were:

Negative W. R.	83	157	74
Positive W. R.	86	152	66

The positive reactions in women were too few to be significant.

Relation of Blood Pressure to Mental Diagnosis. (Table 1.)

The only groups which contained cases enough to establish fair averages were dementia praecox, the manic depressive psychoses and senile dementia.

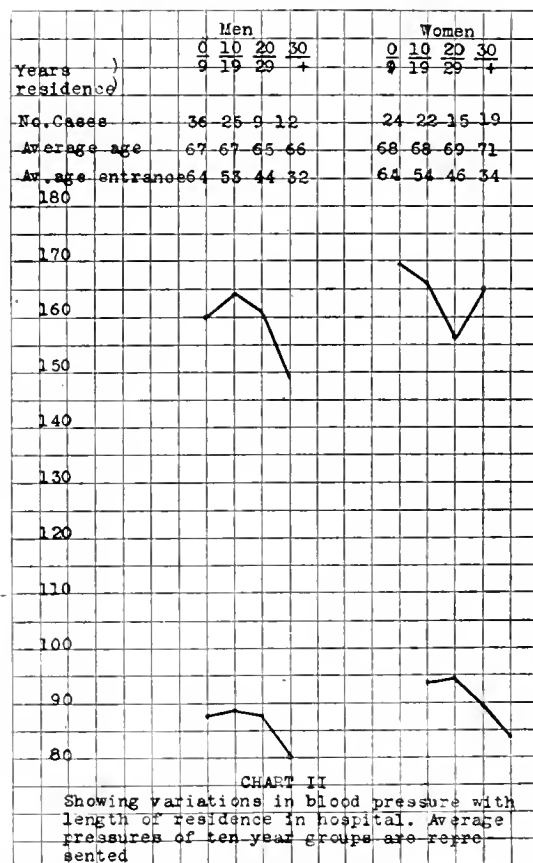
The values for dementia praecox in men and women are the same as the values for all the men and women.

In the senile groups the pressures are:

Men	94	168	74
Women	97	178	81

The tendency to higher blood pressure in women past 60 is shown in both these groups. In the manic-depressive disorders, on the contrary, the diastolic pressure is greater in women and the systolic is about equal in both sexes.

Men	83	159	76
Women	88	157	69



Relation of Blood Pressure to Time in Hospital. (Chart II.)

According to current views of the causes of high pressure, some of the continuous factors are worry, alcoholism, over-eating, emotional stress, physical overwork, etc. The conditions of life in a hospital for mental disorders are such that most of these factors are reduced to a minimum. Chart II has been constructed to show how length of stay in the hospital may modify blood pressure. We find that in men who have been in the hospital more than 30 years, the systolic pressure is 12 or 13 units lower than in those whose length of stay is less than 30 years, although the average ages of the two groups are about the same. The diastolic pressure is less in about the same proportion. In other words, men who have been in the hospital since their 32nd year tend to have lower blood pressure at 66 than those who have passed a greater portion of their lives outside. The causes which produce the increased pressure operate in the decade following 32, since, as Chart II shows, the pressure does not increase by steps as length of residence decreases, but at once reaches its maximum, so that those who enter between their 32nd and 44th years (residence 20 to 29 years) have as high a pressure at 66 as those who are not admitted until old age. Similar relations prevail with regard to diastolic pressures in men.

Women who have been in residence 20 years or more have a lower diastolic blood pressure than the more recent admissions, or conversely, women who enter the hospital before their 46th year tend to maintain a lower pressure than those who enter after this year. Our conclusions with regard to women are drawn from the diastolic pressures, since these give more information concerning the permanent condition of the cardio-vascular system. Systolic pressures for women, in contrast to those for men, do not show any close relation to diastolic pressures.

High Pressure.

Of the 82 men, 18 or 22% had systolic pressures greater than 180 millimeters of mercury. Twelve of these had evidence of heart disease and thirteen had albumen or casts or both in the urine. One only was free from evidence of both heart and kidney disease and eight had both.

Of the 81 women, 26 or 32% had systolic pressures greater than 180 m.m. Eleven gave evidence of heart lesions and seven had ab-

normal constituents in the urine. Eleven of these women were free from evidence of both heart and kidney lesions, and three of them showed both.

The differences between men and women with regard to high pressure and its accompaniments are made clearer by a table.

	AGE	NO. WITH PRES-SURE OVER 180	PER CENT.	WITH HEART LESIONS	KIDNEY LESIONS	BOTH	NEITHER
Men	82	68	18	22	12	13	8
Women	81	69	26	32	11	7	3

Comparison of the sexes with respect to high systolic pressures shows that women with pressures of 180 m.m. and more outnumber men in the proportion of 32 to 22, but that there was evidence of heart and kidney disease in all except one of the men but in only two-thirds of the women. The average ages of the men and women in this group were about the same.

SUMMARY.

Diastolic pressures in both sexes vary little after 60. In men systolic pressures increase about 10 millimeters of mercury for each five years up to 75. Systolic pressures in women increase abruptly in the years from 65 to 69. In older women the pressure is less and does not vary with age. Both diastolic and systolic pressures are distinctly higher in women.

About half of both men and women had evidence of cardio-renal disease. Blood pressures average the same in this group as in all the men and women. Blood pressures in men average the same in those with positive Wassermann reaction as in those with negative Wassermann reaction.

The blood pressure is not affected significantly by the psychiatric diagnosis, except in senile dementia, in which the averages for both sexes are higher.

Chart II apparently shows that the development of high arterial pressure after 60 is furthered greatly by factors which do not operate in the sheltered life of the institution and that these factors are effective as early as the 32nd year in men, but not until the 46th year in women.

One-third of the women and one-fifth of the men have systolic blood pressures over 180 m.m. Evidence of heart and kidney disease

was found in all but one of these men but in only two-thirds of the women.

TABLE I.
COMPARATIVE TABLE OF BLOOD PRESSURE BY DIAGNOSIS, MEN AND WOMEN SEPARATELY.

	MEN				WOMEN			
	No. Cases	D.	S.	P.P.	No. Cases	D.	S.	P.P.
Dementia praecox	29	87	159	72	40	90	168	78
Paranoic condition, etc.	3	81	166	85	4	88	158	70
Epilepsy	5	87	149	62	1	115	232	117
Imbecility	7	89	142	62	2	98	154	56
Manic-depressive	15	83	159	76	18	88	157	69
Alcoholic	9	87	166	79	3	83	170	87
Senile dementia	4	94	168	74	11	97	178	81
Cerebral arteriosclerosis	1	86	168	82	1	98	196	98
Unclassified	2	92	170	78	1	88	158	70

EXTRACT FROM REPORT OF HOSPITAL FOR CONVALESCENTS.

By WILLIAM H. DEVINE, M.D., BOSTON.

This hospital was established for the care of convalescents from influenza, and was organized at St. John's Seminary, Brighton, Mass.

As only one building was devoted to hospital purposes, it was not deemed advisable to admit young children, for fear of contagious diseases, and lack of facilities for isolating. After the first week, an isolation hospital (tents) was erected, and the management then felt that it was safe to admit them. Fortunately, this isolation hospital was not needed.

The hospital was opened October 6, 30 hours after the superintendent reported for duty, and was closed October 26.

The total number of patients admitted was 92. The oldest was 77, the youngest 4. All patients who applied 48 hours before the closing of the hospital were admitted.

TABLE OF ADMISSIONS.

Under 10 years of age	2
Between 10 and 20.....	14
" 20 " 30.....	23
" 30 " 40.....	27
" 40 " 50.....	10
" 50 " 60.....	6
" 60 " 70.....	4
" 70 " 80.....	4

66% of patients received were from 15-45 yrs. of age.
55% of patients received were from 20-40 yrs. of age.

TABLE OF DURATION OF STAY OF PATIENTS AT HOSPITAL.

20 days	.....	1	10 days	.....	4
18 "	.....	2	9 "	.....	2
17 "	.....	1	8 "	.....	4
16 "	.....	1	7 "	.....	3
15 "	.....	4	6 "	.....	16
14 "	.....	3	5 "	.....	9
13 "	.....	3	4 "	.....	10
12 "	.....	1	3 "	.....	10
11 "	.....	4	2 "	.....	10
1 day 2					

The average stay was 7 days. Total number of days spent was 630.

TEMPERATURE OF PATIENTS WHEN ADMITTED.

96 degrees and under	3
96 degrees to 97 degrees.....	26
97 " " 98 "	35
98 " " 99 "	18
99 " " 100 "	5
100 " " 101 "	2
101 " " 102 "	1

The number of sub-normal temperatures on admission indicated extreme debility, a marked characteristic of patients suffering from this disease. A majority were unable to proceed to wards without assistance, and more than 50% were conveyed on stretchers from admitting room to wards.

The treatment of the convalescents consisted of rest, abundance of good food, fresh air, and ordinary tonic medicines. Convalescence was rapid. All pneumonia cases pursued a favorable course.

A very large percentage of patients were men who work out of doors. This may have no significance, as nearly all came from the laboring classes—60% came from lodging houses.

Over 90% of the patients received were convalescents from influenza. About 8% of the patients had pneumonia. About 5% were found to be suffering from other diseases, in addition to influenza.

All patients recovered and were in good condition when discharged, with the exception of three suffering from pneumonia, who will spend

their convalescent period at some other institution, or at home.

In the report to Emergency Public Health Committee, due credit is given to the medical staff, nursing force, seminarians, teachers and other volunteer workers for their prompt response and very efficient assistance.

Selected Papers.

SPEECH-READING FOR THE WAR DEAF.

BY CLARENCE JOHN BLAKE, M.D., BOSTON,

*Professor of Otology, Emeritus, Harvard University;
President, Ninth International Otological
Congress.*

I*

THE study of the means to be employed in dealing with the cases of war deafness, which constitute a part of the disability incident to the struggle upon which this country has entered, must necessarily include the provision of a substitute, or supplementary, means of communication between individuals other than that through the medium of hearing.

This, whatever the degree or the character of the impairment of hearing, whether it be a total loss of sound perception or a distortion of the auditory impression of the spoken word or sentence is of importance, because it supplies a medium of communication in proportion to the individual need of the patient on the one hand and aids in establishing that sense of helpful relationship which must be one of the welcomes extended to those who have waged their all in the defense of those principles for which this nation stands and by the preservation of which it continues to exist.

From the point of view of the surgeon, cases of war deafness fall into three general categories: Those in which there has been a previous disease of the ear; those in which the injury to the sound-transmitting apparatus of the ear originated in participation in war; and those in which, without objective structural injury, there has been the establishment of slowly progressive deleterious changes in the deeper-seated portions of the organ of hearing incident to protracted exposure to loud noise. In addition to these, there are the cases of ap-

parently complete loss of hearing, often accompanied by loss of speech and other functional symptoms which are the result of a profound impressionable shock to the nervous system, without auditory implication, for which no aural treatment is required, cases coming directly within the domain of neurology, but offering opportunity for helpful service on the part of the teacher of speech-reading under the direction of the neurologist.

From the point of view of the teacher, the differentiation should be not only that called forth by the degree of impairment of hearing, but by the individual adaptability of the pupil and the degree in which he will need to apply his acquired facility in the new means of appreciation of the spoken word when he faces the ordeal of trying again to take his place in the wage-earning competition of civil life. In this respect the teacher who can best visualize the influence exerted upon a well stabilized life of peaceful continuity by the interposition of a period of intense excitement and activity and the interjection of visual and auditory impressions of a most subversive character, will be the one to whom the medium of instruction in speech-reading will become the path leading to a broad field of usefulness, not only in helping the returned soldier or sailor, handicapped by an impairment of hearing, again to take his place in community life, but by making the teaching a medium of expression of appreciation of the service rendered.

The learning of speech-reading by the returned soldiers and sailors who need such instruction will be more or less important to all, and absolutely necessary to some, as a part of the effort at rehabilitation, and this work should be undertaken by the teacher chosen for that purpose, under authority, and by all others to whom the chance may later fall, in the true spirit of teaching as a contributive opportunity.

The application of speech-reading to the war deaf who will return to this country for repair, rehabilitation, and re-education can be made to cover a wide, a varied, and a helpful range, according to the degree of impairment, monaural or binaural, the possibility of surgical repair with a view to the betterment of intra-aural sound transmission, the consideration of the concomitant impairment of sound perception and the degree to which the new channel of speech transmission may be avail-

able toward putting the very deaf, of war causation, again on the community level on which he previously stood and moved.

The combination of speech-reading with auditory re-education of the war deaf is another form of application of this new class of training—new in the sense of the exigency which has called it forth—and which presents problems urgent for solution to both the surgeon and the teacher beyond those presented by the casualties of civil life. Re-education of hearing has become an important part of the treatment in many forms of chronic and persistent ear disease, and its association with speech-reading, under conditions which shall convey the sound of the speech to the ear, either aërially or by bone conduction, and leave the lips of the teacher visible is one of its newer forms now being studied and elaborated. In cases of serious degrees of impairment of hearing the association of the visual and auditory impressions helps also in the formulation of the individual voice.

In cases of middle-ear injury, with the labyrinthine apparatus intact, the surgical repair process, including mobilization of the middle ear sound-transmitting apparatus, may be of slow progress or even, because of conditions of disruption, only moderately effective. In such cases the coincident training in speech-reading may be a means of interest and encouragement to the convalescent and, whatever may be the ultimate degree of rehabilitation of his hearing, an addition to his equipment in again taking his place in a working and competitive world.

In those cases beyond repair, those in which the impairment of hearing is absolute, because of the severity of the war injury, and those in which the implication of the labyrinth, in consequence of continued exposure to loud noise, constitutes a permanent defect, training in speech-reading is something more than a crutch—it is a new means of progression.

Many of the war deaf, as the result of long exposure to excessive gun fire and the incident noises of campaign, will be found to hear better, even adequately for ordinary purposes, in the presence of the noise of machinery in motion, of a railway train, or the clangor of a city street, or even under the influence of the mechanical vibration of that comparatively noiseless vehicle, an automobile; but such persons are often distressingly hard of hearing in

a quiet place. In such cases, to meet the mutations incident to a change of environment, a knowledge of speech-reading is a constant stay and reassurance to the patient and should be taught with a due estimation of its value in this respect. In the case of psychic deafness the stimulation of the imitative faculty in speech-reading may be one of the keys which shall help to release the imprisoned consciousness, and when the considerable impairment of hearing, or its total loss, is not the only malady, but is associated with other crippling results of injury, other than loss of sight, the facility with which compensation can be afforded for the former disability will serve as an encouragement to effort in other respects, while even in the case of the blinded deaf, speech-reading by touch may become a medium of communication, as has been demonstrated in pupils of some of our civil institutions.

The demand for this special teaching of speech-reading to meet a vicariously created need suggests its usefulness as a part of the future curriculum of those who are to be of that body of citizens especially devoting their lives to the protection of the peaceful and righteous activities of their fellows, and the ability to translate speech by sight, as well as by hearing, would be a valuable addition to the equipment of all guardians of the public weal and should be seriously considered as a part of the necessary training in selected branches of army and navy and of other public service.

II*

To go overseas in the service of the immediate need and the ultimate good of humanity, with the touch of companionship, the fervor of a generous purpose, and the radiance of an illuminating spirit to light the way, is one thing; to return broken in body or in sense, racked with the memory of hideous things unfamiliar to the gentle, peaceful, striving life which went before, fatigued and weakened: to count the individual cost and face the future with a sense of terror in its competitive demand—these are conditions which must be bridged by earnest and persistent ready helpfulness. Through the barrier of altered conditions there must be stretched the firm grasp of friendship: above it must rise the voice of encouragement and cheer, and, when this cannot be heard be-

cause of deafened ears or clouded comprehension, that silent voice which speaks in form of motion and which must be taught to be understood.

Because of the various conditions accompanying the impairment of hearing, as well as the varying degrees of this especial infirmity and its association as a part of other incapacitating injuries, it is important that the returned disabled soldiers and sailors should be aggregated in a center, or, later, in various centers, according to their numbers and general classification, for a more minute study of their cases and the determination of the more individual needs in repair and in re-education.

The advantage of congregation of cases is obvious, both for purposes of special examination and for treatment, and this applies as much to instances of sense disability as to those of injury to the trunk or limbs, where it is necessary to effect such surgical repair as may be possible, and then to supplement the disabled member by mechanical appliances suitable to some vocational use. The process of surgical repair may be short or long, extending over a period of a few weeks or months, or even a year or more, according to the extent of the injury, its character, and the recuperative power of the individual; and the educational process toward remunerative applicability may equally vary; but through it all the impression should be conveyed not of a sense of dependency, but of expectancy of achievement and of participation in the larger general welfare in behalf of the permanency of which the individual energy has been exerted and the self-sacrifice made.

To add to the cripplement of a limb the barrier of a sense of such accustomed use that the channel of its communication has been almost involitional is to add, often grievously, to the depression incident to shock, pain, and the sense of personal disaster, and the early effort to utilize and enhance the sense of hearing, to supplement it by its visual substitute, and to make these efforts the medium of encouragement, companionship, and uplift may advisedly be placed among the earlier efforts toward relief in the person of the home-coming soldier or sailor.

The method of application of the instruction in speech-reading and the auxiliary measures to be employed with it, by means of appeal to

the auditory or the tactile senses, must be determined by the surgical examination which is to fix the status of the individual patient in reference to the treatment to be applied for his relief: In cases of disruption of the middle ear sound-transmitting apparatus with an intact labyrinth, the possibilities of repair and the degree of restoration of function; in cases of labyrinthine implication, the question of auditory re-education, coupled with remedial effort at partial rehabilitation; and in the cases without aural implication proper, but with a suspension of function consequent upon profound neural shock, the question of the value of a combined appeal to the visual and auditory senses as an associate means of primary entrance to the prison of the senses in which the patient is immured.

The ways in which speech-reading may be made to serve as the handmaiden of conversation in these various classes of cases will be later made the subject of more detailed description, and upon the basis of the preliminary appreciation that this particular and comparatively novel form of service, provision for instruction in speech-reading, may, for both material and psychologic reasons, be made one of the earlier equipments in provision for the reception of our disabled troops.

Even in such extremity of disaster as the loss both of sight and of hearing, the effort to use speech-reading by sense of touch need not be without avail, as has been proven in instances of facile pupils among deaf and blind children, the sensation of the expired breath lending its aid to the appreciation of the cryptogram of the mobile lip and face muscles, the teacher speaking against the cheek, the forehead, the bared arm, the back or front of the hand, or the finger-tip of the pupils, the lessons being supplemented by the hand touch or scriptorial alphabet or by instruction in Braille.*

With adults in whom the speech formulae have already been created and used until they have become a part of the habit of life, their translation, mentally, into a recognizable, mutable form is a very much more easy matter than where the structure of position and motion must be built from its foundation, as is the case with the deaf and, mentally, mute

* In the conjoint study of the sense perceptions of the blind and deaf made by Profs. G. Stanley Hall, William James, J. J. Putnam and the writer, it was found that the tactile acuity of perception of the skin in increasing ratio was in the order of the parts above named.

child, who, lacking both hearing and any conception of the meaning of the labial and facial positions, must be provided with a mental postulate upon which the speech-reading can be built.

It does not follow, however, that the teaching of speech-reading to wounded youths and men will be a contrastingly easy matter, and this the teacher taking such work in hand must bear in mind, for the physical condition of the pupil, in reference to the strength he has to spare, the duration of his ability for concentration, the extent to which his mental processes have been obtunded or impaired, as well as the character and quantity of his hearing power, as an ancillary medium of communication, should all be taken into consideration.

A comparative study of so peculiar and unusual a class of pupils, the discriminative study of even a single individual, disrupted from his habitual course of life and put in an especial class, is one for which the teachers of speech-reading cannot singly be considered competent.

The teaching of speech-reading to the deaf in such a central hospital must be formulated, so far as its application to the patient is concerned, upon the opinion and direction of the hospital medical staff. In other words, it is to be regarded as one of the remedial measures which is to be authoritatively prescribed. When judiciously administered it will be far more than a means of relieving the tedium of convalescence and providing an added help toward re-entering the working and participating world; it may be made the medium of instruction and of encouragement or, unwisely taught, too strenuously insisted upon, it may cause fatigue and discouragement and be a check upon recuperation.

The unusual conditions of these especial pupils to be so welcomely received, so eagerly awaited, in the hope of rendering them some service, awaken emotions which, to be made of their true value, must be subordinated to cool judgment of conditions and the needs, and be flexibly ready to do the requisite teaching as a part of hospital team-work, one of the advantages of this preliminary hospital concentration being not only that the patients can be compared and studied as to their needs, but that the necessary provision for their future may be justly estimated and those attendants and teachers (from different parts of the coun-

try) trained who are to continue the teaching and the speech-reading habit, it being the accepted axiom of the modern hospital that an equal, if not a greater, value of its purpose lies in its extra-mural work. The control hospital in which speech-reading for the war deaf is to be first applied thus becomes also the center for the speech-reading clinics in different parts of the United States, already wisely provided for, and the principle of team-work is thus extended and provision and a foundation made for that acquaintance with speech-reading, on the part of the community, which will ultimately lead to a due recognition of its educational value and to its inclusion in the stated curriculum of our schools and colleges.

(To be continued.)

Society Reports.

JOINT MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION AND THE LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

The joint meeting began with a Symposium on Bronchoscopy, the first paper of which was one entitled "Localization of the Tracheobronchial Tree; Preliminary Report of a New Method," by Dr. Chevalier Jackson, Philadelphia, Pa.

THE BRONCHIAL TUBE: ITS STUDY BY INSUFFLATION OF OPAQUE SUBSTANCES IN THE LIVING.

CHEVALIER JACKSON, M.D., PHILADELPHIA.

1. In intrabronchial insufflation with opaque substances, in the living, we have a measure of the greatest usefulness in mapping out the tracheobronchial tree in foreign body cases in which a foreign body is far in the upper lobe bronchi or in other small bronchi that cannot be entered by the bronchoscope. A stereoscopic pair of radiographs will show the bronchi *in situ* in the living, and the bronchi can be followed in the fluoroscope.

2. The intrabronchial insufflation of dry bismuth subcarbonate, through the bronchoscope, in sufficient quantities to cast a shadow did not produce any untoward symptoms, and the bismuth totally disappeared from the lung by expectoration in twenty-four hours.

3. The insufflation of dry powders and the injection of opaque fluid mixtures through the larynx gives a degree of visibility of the trachea and larger bronchi in the radiograph; but the results are not as good as when the insufflation of a dry powder is done through the bronchoscope.

4. The method is available for an enormous field for investigation of the action of the living cilia, in health and disease, the lymphatic drainage of the lung, the mapping out of bronchiectatic and abscess cavities, etc.

SUSPENSION AS I USE IT TODAY.

ROBERT C. LYNCH, M.D., NEW ORLEANS.

The patient lies flat upon the table with the head extended; the crane is attached as far back on the table as is possible, allowing only sufficient room to turn the handle which moves it horizontally; the vertical position of the crane will now be on a line with the patient's shoulders. The mouth is open wide by placing an ordinary mouth gag in the left angle of the mouth, and this is steadied by the assistant, who has only to keep the head extended in the middle line, there being no need for support, since the head is resting on the table. The hook is the same in its every detail as presented to you before, and we have done away with the long tooth plates and dental spoons. The gag of the hook, instead of being closed, is now introduced sufficiently open to permit a view of the tip of the spatula.

Instead of passing the spatula along the postpharyngeal wall, he now follows down along the base of the tongue until the epiglottis is seen, then it is lifted with the spatula just as one does in bronchoscopy, and by this time the short tooth plates will fall behind the teeth, when the gag is opened wide to fix the tongue and epiglottis. Now the hook is placed upon the crane and the worm gear joint turned to bend the hook slightly to an obtuse angle. The crane is lifted in the vertical to flatten the base of the tongue, and this will raise the epiglottis so that the larynx will come into view. If the view in this position is not already sufficient, then by moving the horizontal crane towards the head of the table will bring the anterior commissure into view far better and much easier than the old method.

This differs from the older technic in that the head is flat upon the table, and any un-

trained assistant can hold it steady, and the patient is not dragged over the top of the table as before, and the mouth is wide open with a gag giving plenty of room for the introduction. There is no necessity for the table to be cut, as has been described, nor for the projecting platform, since the crane is attached far back on the table behind the patient rather than ahead of him. There is no danger of dropping the patient from the crane or from the spatula, since the head is not lifted from the table, or, if so, just enough to procure sufficient tension to flatten the tongue.

The view is much more natural, and, if anything, clearer and less distorted, since there is much less tension at the region of the hyoid bone and the base of the tongue. The vocal cords, instead of being stretched anteroposteriorly, are now more relaxed, as shown by the respiratory movement under ether, and by the tones emitted under cocaine. This, of course, permits of more accurate dissection, especially when removing the small tumors, such as vocal nodules. One looks now down the spatula along the line of the trachea and can usually see the bifurcation, as is shown by the possibility of introducing a bronchoscope deep into either bronchus.

In the old way, one looked from below up along the spatula, and it was impossible to get the bronchoscope further down than the fourth ring of the trachea. Consequently, in this new position, there is really no need for a table that can be elevated, though it is always a comfort for any operative procedure. Finally, the patient will complain much less of after pain about the angles of the jaw, back of the neck and of headache. There is much less danger of pinching the tongue between the spatula and the teeth of the lower jaw, and it is much easier, more rapid and more accurate to introduce in this way than the old way.

SOME ORIGINAL METHODS OF TREATMENT OF LARYNGEAL STENOSIS.

SAMUEL IGLAUER, M.D., CINCINNATI.

For patients who are wearing a tracheal cannula, the author follows the same principle which underlies the use of rubber tubes in laryngostomy, which has the advantage of being employed without the necessity of splitting the larynx.

The methods used are:

1. Dilatation by means of a rubber tube doubled upon itself. The length of the tube when doubled should approximate, as nearly as possible, the distance from the arytenoid to the upper margin of the tracheotomy. A string is fastened to the rubber tube, which is wrapped clockwise about the stem of the tracheal cannula, and then fastened to the patient's neck with adhesive plaster. This is to prevent the tube gliding past the tracheal cannula.

Another string is allowed to protrude from the patient's mouth to serve as an extractor when the tube is to be changed. This method permits a certain amount of pneumatic pressure because of the air in the tubing.

The second method is the insertion of a single rubber tube from below. The third is intubating by traction.

In the latter two small holes are bored in the lower end of an intubation tube, one in its anterior and the other in the posterior surface of the tube. A stout silk cord is then passed through both these openings, while the head of the intubation tube is threaded in the usual manner.

Removing the tracheal cannula, a cord is introduced through the tracheal opening until it presents into the mouth. This string is fastened to that attached to the lower end of the intubation tube. Traction is made with a guiding finger in the larynx, the intubation tube drawn down in position.

The diameter of these intubation tubes may be increased by stretching rubber over the tubes.

Finally, clamped Rogers intubation tubes may be employed.

DISCUSSION ON SYMPOSIUM.

DR. EMIL MAYER, New York City: While I have not tried the method Dr. Lynch described, it appeals to me in every way. Whereas in our old method we have hung up the patient and practically held the weight of his body on the teeth and the tip of the epiglottis, today that patient can, thanks to this method, rest on his back. Instead of hanging the patient up, we are really only opening his jaws. We are getting much closer to his larynx, and are able to go in farther. I have only words of praise to say of the method. I can understand that with the mouth wide open you are

nearer and can see better to handle the patient with the fewest number of assistants.

I was particularly interested in the paper of Dr. Iglauer, as I had reported at the meeting yesterday the case of a boy who had worn an intubation tube for five years before I was able to do away with it. I want again to call attention to the fact of the extreme tolerance of the larynx to manipulations of various sorts. I rather feel that I should disagree with Dr. Iglauer in regard to doing a dissection and making an open wound in the larynx, if you can divulse it in any other way. I have always been able, after a comparatively short time, to have the opening wide enough in the cases that I have seen, to put in the ordinary uterine dilator, either from above or from below, and preferably the latter, and dilate the parts without making any wound.

Again I should object to the leaving of any cord in the patient's mouth and fastening it to the cheek. Those who lived in the early days of intubation thought that they could help O'Dwyer by leaving the cord fastened to the intubation tube in the mouth, but the cord was either bitten through or pulled out by the child, and the attempt was abandoned. My experience is that a piece of rubber tubing fastened at the upper and lower ends acts as a balloon and can be introduced in the manner described, which is quite the manner that I use.

One other thing: I prefer to keep the rubber tube *in situ*, leaving a double end of cord and tying it around the neck, rather than fastening it to the tracheotomy tube.

The ingenious method of holding an intubation tube in position by drawing it down is one that I think is extremely valuable. The speaker described a method of slow intubation successfully used. During the Spanish-American war he was asked to look after a soldier who had been in the battle of El Caney. Lying on his face, he had been shot by a sharpshooter who was in a tree. When picked up the injured man was bleeding from the mouth, a piece of tissue was hanging from the mouth, and there was an abrasion over the eye. The diagnosis made at the field hospital was that it was a glancing shot and that the eye was not injured. He was put on the transport and sent to Bellevue Hospital, where a tracheotomy was performed. He was walking around wearing a tube, and some ladies asked Dr. Asch

and myself to see what could be done. As soon as I looked into the throat I saw a hole punched in the soft palate, as though I had put in a punch and taken out a piece. I learned that the man had been shot from above, the bullet going down through the maxillary bone, cutting the soft palate, smashing the thyroid cartilage, entering the esophagus, and passing out into the stomach spent, and finally passing per rectum.

I began slow dilatation, and finally got the larynx dilated so much that I thought I could introduce an intubation tube, but as soon as I put it in, the man got blue. I had an intubation tube made of the same external size, but with a larger opening and with an introducer that was hollow, so that the minute it got in, the man breathed through the handle, and I could intubate him for any length of time. In that slow way I could get the intubation tube into the larynx. I mention this method because some such things might arise in this present war.

DR. HUBERT ARROWSMITH, Brooklyn: I cannot see how, referring to Dr. Jackson's method, in view of the fact of the little harm that was done in the old days by copious insufflations of powder into the air passages, a little bismuth could do lasting harm, and I should think that this method would be of extreme value in helping us out in these very uncertain and difficult to locate small foreign bodies. Since I heard Dr. Lynch speak of this in New York last fall, I have used this method continuously, and I can corroborate his statement concerning the greater facility with which the speculum is introduced, the infinitely greater comfort with which it is retained by the patient and the improvement of the operative field.

DR. JOSEPH C. BECK, Chicago: I had a case of a man who had a lung full of coal. He showed a beautiful bronchial tree, and I made experiments with forced inhalation by means of the Billings inhaler of anilin dyes that are radiographically obstructive. This picture, which I am sorry to say I did not bring, showed that if not the insufflation, perhaps the forcible inspiration of radioobstrusive substances that would be vaporized might be of some value.

Some of you may remember at the American Congress of Surgeons, that I was going to demonstrate suspension laryngoscopy in a pa-

tient under general anaesthesia, and was unable to put his head over the edge of the table. Finally I succeeded, with the patient's head flat on the table, and thought that made a bad job of the demonstration of suspension as then taught. The next day I asked this patient to bend his head back, and he said, "I never could; I have a stiff neck." I have employed this method, as demonstrated by Lynch, for a year. Three weeks ago I had a patient with a little growth in the larynx, of which I could not obtain a good view with the head on the table, but I succeeded very nicely with the old method, so perhaps there are some cases that would still be better handled with the old method. I do not know what was the reason—perhaps some anomalous condition about the hyoid bone.

The method that Dr. Iglauder spoke of, of using the full length intubation tube, I have used with satisfaction, and the new method that he has described today I will employ. I had a similar accident to the one he spoke of, in using the full length intubation tube. It did not perforate, but engaged in the wall of the trachea, and I had considerable difficulty in manipulating it. This method that he describes today will do away with some of those difficulties.

DR. HENRY L. LYNCH, New York City: Dr. Jackson has given us a great aid in bronchoscopic localization by his bismuth insufflation method, especially in difficult localization of small foreign bodies which do not show in the X-ray plate. I have used the bismuth esophageal capsule in many cases which did not show in the X-ray, and by this aid have been able to locate the foreign bodies and remove them.

As far as bismuth irritating the bronchi is concerned, there seems to be little discomfort about it. We have had two cases with tracheoesophageal fistula who complained of difficulty in swallowing. The diagnosis of tracheoesophageal fistula was made from the radiograph. After swallowing the bismuth meal there was a violent attack of coughing, and when the X-ray pictures were taken they showed the whole of the tracheobronchial tree in bismuth shadow. All of the bismuth was subsequently coughed out. After having had this rather unpleasant experience, neither of the patients returned to the hospital for further treatment.

I should like to ask Dr. Lynch whether he removes the apparatus after he passes the bronchoscope, especially when he has to rotate the head in examining the upper lobe bronchi. The improved Lynch position of the semiflexion of the head in the examination of the larynx is very advantageous, but there is no advantage of suspension bronchoscopy over the other methods which are much simpler in technique.

Dr. Iglauer has brought forward in his paper one of the most difficult problems which we have in surgery. It does not matter how you cure a case of laryngeal stenosis, as long as you get the case well. That is all we are striving for. The voice, in the final outcome, has been far better in the cases cured by intubational dilatation than in those cured by laryngostomy. But when there has been extensive sloughing of the thyroid and cricoid cartilages and complete stenosis, laryngostomy is the only method indicated. You cannot get the larynx dilated from below or from above, and the method of Rogers to dilate the stenosed larynx by means of urethral sounds from the tracheal fistula upward will dilate the larynx, but considerable force is necessary and often an esophageal false passage is the result. If you attempt forcibly to dilate from above downward you invariably have a false passage as a result, and the case may succumb from mediastinal infection. Laryngostomy is by far the safest and best method of curing this type of case. As far as the string is concerned, I agree with Dr. Mayer that it is a very bothersome thing to leave in the mouth and may also be a source of danger, for the child can easily remove the tube by constantly tugging at the string with the tongue. This is, however, impossible with the anchored tubes of Dr. Iglauer.

In cases who have recovered from acute laryngeal diphtheria the tube has often been defubated by the tongue of the child and may be in the esophagus and is noticed only at the time the nurse finds that the child has difficulty in swallowing, while the child has been breathing quite naturally during this time and the tube thought to be in place. If the string must be left on the tube, it is far better to bring it out by means of a small catheter through the nares and attach it to the side of the face. This causes no discomfort, and the child cannot remove the tube with the tongue.

DR. FIELDING O. LEWIS, Philadelphia: I was especially interested in Dr. Iglauer's paper, and it has been my pleasure during the last year to have four of these cases operated on by the method of Dr. Jackson. I have some drawings which show three of these cases before and after operation, and wish to present Dr. Jackson's laryngoscopy tube with the rubber extension which I have used in all these cases, the advantage of which is that it prevents the formation of a tracheal spur between the tracheotomy tube and the extension, whatever it may be, above. It also permits breathing through the tube, the upper part not being completely closed.

DR. JOHN W. MURPHY, Cincinnati: Before Dr. Iglauer devised this method, as we usually worked together, we had a good deal of difficulty in getting these cases so that they could leave the hospital. They were with us for months at a time. In several of these cases, and the one which he mentioned, too, there was absolutely no opening from the upper part owing to the patient's having worn a tracheotomy tube until the upper part of the larynx had closed, so that even a filliform bougie could not be passed. By means of a fine sound, however, we succeeded in getting a minute opening through this membrane. It is not safe to attempt to enlarge the opening with any instrument. We find that the moment we can get the finest probe through and carry a string down and draw the tube up, we take much less risk of doing damage, and by this continuous method of dilatation we get much more satisfactory results than by any other.

The method of Dr. Lynch has been employed sometimes by me since I saw him use it, about a year ago. I find it simpler and very much more comfortable to the patient.

DR. GEORGE F. COTT, Buffalo: I had the same experience as Dr. Beck. In my case the patient had difficulty in breathing. I put him under ether and tried to introduce the bronchoscope and found that I could not put the head back far enough. The next day he told me that he had ankylosis of the vertebrae of the neck. That is a thing that does occur now and then.

DR. WOLF FREUDENTHAL, New York City: It seems to me that the method of Dr. Lynch is a great improvement over the old one, yet I

am not ready to give up the original Killian method with the head hanging down, for a certain class of cases. I operated with suspension laryngoscopy in a tuberculous case in which any effort on the part of the patient was not desirable on account of hemorrhage. For this class of cases the new modification is really excellent, but we encounter cases in tuberculous patients which do not go as you want.

DR. ROBERT C. LYNCH, New Orleans: I want to correct a wrong impression on the part of Dr. Cott. Cases of the acute type would get well sometimes, and when the child was recovering from the stenosis lesion the tube could be easily coughed up without anyone knowing of it. We recently had admitted to the hospital a child that had a tube put in by a specialist. The child was then sent to the hospital, and when he got there the tube was stuck to the side of the mouth. He was cyanotic. One of the house staff pulled the string and found the tube was probably in the stomach. The child can cough the tube out when the stenosis is subsiding without there being any evidence of it.

DR. HARMON SMITH, New York City: A few years ago Dr. Lynch reported no recurrence after removing papilloma, and I thought that he had solved this problem. It would be interesting to know whether the growths were single or multiple, and whether single or multiple in children or in adults, because I think that the class of growth materially affects the problem of recurrence. In the multiple variety in children the more they are interfered with the more they recur, and even after all methods have been tried, the tracheotomy tube, for a long length of time is, I think, one of the safest modes. Secondly, the removal of a growth in an adult and its non-recurrence does not assure us that after removing a papilloma in another adult it will not recur. Papillomata vary in type, in malignancy and in tendency to recur, and from the pathologic standpoint you are unable to deduct whether or not the tumor will recur. Another point that I should like to have brought out by Dr. Lynch, is whether he has ever employed fulguration alone, because, with the suspension, as he employs it, the surface of the larynx can be made as dry as the face, and I have always contended that if you can dry the surface of the papilloma in

the larynx and can be sure that it will remain dry during the fulguration, the fulguration will overcome it—except in the multiple variety in children.

CLOSING DISCUSSION ON SYMPOSIUM.

DR. CHEVALIER JACKSON, Philadelphia: So far I have used the method presented only in cases in which it promised benefit to the patient, directly or indirectly, for localization or therapeutic effect. It remains to be determined whether or not we may expect benefit to chronic bronchitis, pulmonary abscess and other lesions. I used dry powder, and it was coughed out completely in twenty-four hours. Possibly other preparations might not be so readily gotten rid of. I hope Dr. Arrowsmith will try to devise a way of getting the dry powder or some suitable preparation down through the larynx without having to pass the bronchoscope. The method then would be of general application by the roentgenologist. Localization, individual variation, bronchiectasis, abscess and other pathology could be readily demonstrated.

The treatment of obstinate tracheal stenosis has been a hobby with me for many years. The method developed by Dr. Ellen J. Patterson and me gets the patients well. Our experience coincides precisely with that of Dr. Lynch as to the indications for laryngostomy. Our experience also coincides with that of Dr. Mayer and Dr. Iglander in regard to the use of another method when one method does not succeed. In laryngostomy the operation is of less importance than the after care. Too many cases are reported too soon. Dr. Patterson insists on a period from one to three years before doing the plastic operation for closure of the laryngostomic opening. One of our patients who lives in Chicago was recently sent to Dr. Beck for plastic closure, and I think he can testify to the widely open larynx obtained by the method devised by Dr. Patterson and me.

DR. ROBERT C. LYNCH, New Orleans: In response to the question of Dr. Lynch as to whether we removed the suspension in bronchoscopy, especially in work on the upper bronchi, I would say that it is preferable in these cases to do the bronchoscopy without suspension, the apparatus being used for the simple passage through the vocal cords. When it has

entered the trachea, the suspension has served its purpose, and the rest is better done without the suspension apparatus being *in situ*. The only exception is where there are multiple foreign bodies, when it is necessary to introduce the tube several times, and retention of the apparatus will save the traumatism induced by passing the apparatus through the larynx of an infant or young child.

Replying to Dr. Smith, all of these cases were put in this appendix on the recurrence of papilloma after dissection purposely to contradict my statement made at first, when I reported sixteen cases of papilloma of the larynx removed by the dissection method without recurrence. I had had no experience with recurrence up to then, but since then the cases have increased, and my knowledge in proportion, and we have had these five recurrences after dissection by means of suspension. I reported that particularly to contradict my own statement that there were no cases of recurrence.

The cases were all multiple. They were all in children, and I brought out the point that they recurred after some inflammatory attack in three instances, and without reason in two. I have used fulguration, and believe that in the multiple cases possibly it is better than dissection. Recently I have been drying the papilloma by swabbing the surface first with alcohol and blowing in compressed air to dry out the water that is in the papilloma and then fulgurated it.

DR. SAMUEL IGLAUER, Cincinnati: As a matter of fact, I do not always leave the string in the mouth, but I find that it takes a little time and trouble to depress the tongue and find the tube by the ocular method. The question is, How sharp are the teeth? We have one little fellow who has very sharp teeth, and he usually chews through the string. As far as the tube being coughed up and getting into the esophagus is concerned, that is impossible in this method, because the tube is anchored below. I find that by leaving the string in the mouth it is easy to make the change when I want to put in a fresh tube. I think that we should devise all methods we can to facilitate treatment, because no matter what method is used, the chief things are persistence and patience. If you can save the time in your daily work, it counts, both for yourself and the patient.

So far as I know, there has been no spur for

mation. When one uses the intubation tube, one can work the rubber covering downward on the posterior lip of the tube, and that prevents the formation of a spur.

As for laryngostomy, there is no objection to it in special cases, but if one can treat a case without splitting the larynx one is better off.

(To be continued.)



THIRD RESUSCITATION COMMISSION. PROCEEDINGS AND RESOLUTIONS.

EDITED BY PROFESSORS HOWELL-STEWART AND THOMSON.

(Under the Auspices of the Committee on Safety Rules and Accident Prevention of the National Electric Light Association.)

THE Commission met in New York at the Rockefeller Institute Friday, May 17, 1918.

There were present at the meeting: Past Assistant Surgeon E. F. DuBois, U.S.N.R.F., of the Bureau of Medicine and Surgery, Navy Department; Dr. D. L. Edsall, Professor of Medicine and Dean, Harvard Medical School; Mr. W. C. L. Eglin, Chairman of the Committee on Safety Rules and Accident Prevention of the N.E.L.A.; Dr. Yandell Henderson, Professor of Physiology, Yale University, and Consulting Physiologist of the Bureau of Mines; Dr. Wm. H. Howell, Professor of Physiology and Assistant Director of the School of Hygiene and Public Health, Johns Hopkins University, Member of the National Academy of Sciences; Dr. Reid Hunt, Professor of Pharmacology, Harvard Medical School, Secretary of Commission; Professor A. E. Kennelly, Professor of Electrical Engineering at Harvard University and the Massachusetts Institute of Technology; Dr. Charles A. Lauffer, Medical Director of the Westinghouse Electric Co., Pittsburgh, Pa.; Dr. S. J. Meltzer, Rockefeller Institute, Chairman of the Commission, Member of the National Academy of Sciences; Dr. Joseph Scherschewsky, Assistant Surgeon General, U. S. Public Health Service; Dr. G. N. Stewart, Professor of Experimental Medicine, Western Reserve University, Cleveland; Prof. Elihu Thomson, General Electrical Co., West Lynn, Mass., Member of the National Academy of Sciences; Lieutenant-Colonel Edward B. Vedder of the Army Medical School; Major Frank G. Young of the Ordnance Division of the War Department.

A telegram was received from Surgeon-General Gorgas that Dr. Charles H. Frazier, Professor of Surgery, University of Pennsylvania, is to represent his office. (In a subsequent communication Major Frazier accepted his appointment). Conferees: Mr. P. H. Bartlett, Philadelphia Electric Company; Mr. Wills MacLachlan, Electrical Employers' Association, Toronto, Canada; Mr. C. B. Scott, chairman of the Sub-Committee on Accident Prevention N.E.L.A.; Dr. F. E. Schubmehl, General Electric Co., West Lynn, Mass.

The object of the Commission, the Chairman stated, is to consider efficient methods of artificial respiration in emergency cases, *as they are met with in peace as well as in war*. For more than a century, England has had several life-saving societies, and many special commissions have been appointed to investigate the methods employed in resuscitation. In this country, about six years ago, a Commission on Resuscitation from Electric Shock was created for the first time, by the initiative of the National Electric Light Association. It is now generally recognized that efficient artificial respiration is, for such conditions, the best and practically the only means available for resuscitation. It requires but little consideration to realize that the need for an efficient means of artificial respiration is very widespread.* The Committee on Safety Rules and Accident Prevention of the N.E.L.A., of which Mr. Eglin is the chairman, agreed that *the Third Resuscitation Commission should consider its problems from a general point of view*.

Mechanical Methods. Dr. Meltzer demonstrated in the laboratory for physiology and pharmacology, the efficiency of the method of pharyngeal insufflation in an etherized dog after complete removal of the anterior wall of the thorax, in which the lungs and heart were exposed to full view. (18 minutes.)

Dr. Rossiter, of the Carnegie Steel Company, demonstrated the latest device of the Pulmotor Company, which is not identical with the original pulmotor. He showed, also, the original pulmotor. He stated that he had resuscitated eight gas cases, in which the respiration had stopped. This was done by the original pul-

motor, in which he had more confidence. (30 minutes.)

Dr. James M. Booher, Medical Director of the Life Saving Devices Co., demonstrated the lungmotor. He showed a number of blood pressure tracings, taken from animals which had received artificial respiration by means of this apparatus. In reply to a question, Dr. Booher stated that in these experiments the lungmotor was connected with the animal by means of a tracheal cannula. (In human cases the lungmotor is applied by means of a face mask.) Dr. Booher left with the Commission histories of a number of cases in which the lungmotor had been used. (30 minutes.) (The Commission found no time to examine these written histories, but Dr. Booher mentioned verbally especially two cases. One of these cases was subsequently investigated by the Chairman. The life of a poliomyelitis patient with complete paralysis of the respiration was maintained for thirty-six hours by means of the lungmotor. The reporting physician is of very good standing.)

In introducing Mr. Foregger, the Chairman explained that the physician who was most competent to present the details of the apparatus of the Foregger Company is now in France. Mr. Foregger was allowed fifteen minutes. The apparatus consists in modifications of the insufflation apparatus of Meltzer. Among other changes, the apparatus carried an oxygen generator tank. In reply to a question, Mr. Foregger stated that the oxygen thus generated may last eight or ten minutes.

Manual Methods. Mr. Eglin read a letter from Mr. M. W. Alexander of the General Electric Co., stating that he hoped the "Commission would be very definite in recommending the prone-pressure method, as experience has proved its value."

Mr. C. B. Scott stated that the Accident Prevention Committee of the N.E.L.A. had reached the point in its investigation where it felt that the prone-pressure method was best to recommend, bearing in mind that machines are not always available in emergencies. His own company had had nine successful cases of resuscitation by the prone method and three unsuccessful cases in which mechanical means were used.

Dr. Schubmehl stated that the prone-pressure method has been most successfully applied by their two hundred and twenty-five first-aid men.

* For instance, in injuries to the head which stop respiration, injuries to the chest (especially double pneumothorax) in laparotomies during which the respiration ceases occasionally, in cases of shock which occur in peace and more so in the present war, in poliomyelitis with stoppage of respiration, in post-diphtheritic paralysis, in poisoning by opiates, by volatile gases (ether, chloroform, etc.) by mine and fuel gases, poisoning by magnesium salts, in electric shock and in drowning.

Mr. MacLachlan stated that he had the duty of training possibly three thousand men in the prone method. Their system required the men to practice this method at least once a month. The men are instructed not to desist in less than three and a half hours, and that not till then should they listen to advice from a physician who might tell the operator that the patient was dead.

The Secretary read the following parts of a letter from Professor Schäfer of Edinburgh to the Chairman: "The prone method has been adopted *exclusively* for about twelve years by the Royal Life Saving Society, the only important organization in the British Empire whose object is the resuscitation of the apparently drowned. It has also been adopted for several years by the London and other police force, by the Board of Trade, by the Army and the Navy." "The most important thing is in cases of drowning to have something ready which any man can use; which will effect respiratory exchange—whether exactly as much as normal, matters very little."

RESOLUTIONS ADOPTED BY THE COMMISSION.

In the discussion following the presentation of methods and evidence to the Commission the following important facts were emphasized:

1. That in most accident cases no resuscitation apparatus is at hand for immediate use.

2. That reliance upon the use of special apparatus diminishes greatly the tendency to train persons in the manual methods and discourages the prompt and persevering use of such methods.

3. The police officers or physicians often interfere with the proper execution of manual methods, in that they direct that the patient be removed in an ambulance to some hospital, thus interrupting the continuance of artificial respiration.

4. That in many hospitals the members of the staff are not all acquainted with the methods of artificial respiration.

5. That in medical schools instruction is not properly provided for students in the manual methods of artificial respiration.

In view of these facts the following resolutions were adopted by the Commission:

1. The prone-pressure or Schäfer method of

resuscitation is preferable to any of the other manual methods.

2. Medical schools, hospitals, fire and police departments, the Army and Navy, first-aid associations, and industrial establishments in general, should be urged to give instruction in the use of the prone-pressure method of resuscitation.

3. Individuals who, from accident or any other cause, are in need of artificial respiration, should be given manual treatment by the prone-pressure method immediately on the spot where they are found. It is all important that this aid be rendered at once. The delay incident to removal to a hospital or elsewhere may be fatal, and is justifiable only where there is no one at hand competent to give artificial respiration. If complications exist or arise, which require hospital treatment, artificial respiration should be maintained in transit, and after arrival at the hospital, until spontaneous respirations begin.

4. Persons receiving artificial respiration should, as much as possible, be kept warm and the artificial respiration should be maintained till spontaneous breathing has been permanently restored, or as long as signs of life are present. Even in cases where there is no sign of returning animation, artificial respiration should be kept up for an hour or more.

5. A brief return of spontaneous respiration is not a certain indication for terminating the treatment. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched and if normal breathing stops, the artificial respiration should be resumed at once.

6. Artificial respiration is required only when natural respiration has ceased. In cases of simple unconsciousness from any cause in which natural respiration continues, artificial respiration should not be employed without medical advice.

7. The Commission recommends that in cases of gas asphyxiation, artificial respiration, whether given by a manual method or by special apparatus, should be combined when possible with the inhalation of oxygen from properly constructed apparatus.

8. With regard to the employment of mechanical devices for artificial respiration the Commission feels that it ought not at present to take a definite stand either for or against any particular form of apparatus. However,

the Commission recommends, that the use and installation of apparatus should be confined, for the present, to properly equipped institutions under medical direction. The Commission recognizes the great need of simple devices capable of performing artificial respiration reliably and efficiently. It therefore recommends a careful study of the problem, directed toward *the development of a reliable method appropriate for general adoption*. Such studies can best be carried on in properly equipped hospitals and laboratories which offer opportunities and facilities for critical observation and experimentation.

In view of the importance which the knowledge of proper methods of resuscitation possess for public health and safety, and considering the fact that many practitioners, members of hospital staffs and graduates of medicine are not thoroughly familiar with the methods of resuscitation, especially that of the prone-pressure method, the Commission recommends:

(a) That medical journals (and other scientific and practical journals which are interested in the problem of resuscitation) be asked to publish the resolutions adopted by the Commission.

(b) That a copy of these Resolutions be sent to the medical colleges with a request that proper instruction in this subject shall be arranged for in the *College Schedules*.

(c) That these resolutions be sent to as many hospitals as possible, with the recommendations that members of the house staff shall familiarize themselves with the methods of resuscitation.

(d) In order that the resolutions of the Commission may be brought to the attention of interested circles (fire and police departments, industrial plants, etc.), it was agreed that they be communicated to the Associated Press (by the National Electric Light Association).

It was voted that the Third Resuscitation Commission should be properly organized and continue its existence, ready to respond when requirements arise. The following officers were elected: President, Dr. S. J. Meltzer; Vice-President, Dr. Yandell Henderson; Secretary, Dr. Reid Hunt; Treasurer, Mr. W. C. L. Eglin.

It was voted to appoint a committee for the collection of verifiable data relating to resuscitation. The President appointed to the committee: Dr. D. Edsall, Chairman; Dr. Reid

Hunt, Secretary; Prof. Elihu Thomson, and the President, *ex-officio*.

The Commission consists of fifteen members. Fourteen approved the foregoing report without qualifications. The fifteenth member wishes to qualify his vote by the following:

STATEMENT.

Dr. Yandell Henderson qualifies his support of the resolutions as follows:

While I concur in a considerable part of the report of the Resuscitation Commission I dissent from the statement in Resolution 8 recognizing "the great need of simple devices capable of performing artificial respiration reliably and efficiently."

Devices which are excellent from the mechanical standpoint are now available and widely sold; but the evidence regarding them indicates clearly, I believe, that even if these devices were on the spot where several gassings or electrocutions occurred, and if all the victims were treated with them, except one who was given manual (prone-pressure) treatment, this one would have much the best chance of recovery. In actual practice the apparatus is seldom right on the spot adjusted and ready. Critical time is lost, and thus in the above suppositions cases, as they actually occur, the only victim with any considerable chance of resuscitation (aside from those who recover spontaneously and are credited to the apparatus) is the one treated manually.

Even more important is the fact, demonstrated now by universal experience, that when apparatus is known to be obtainable, it is sent for and the manual method neglected. Thus today the apparatus in public use is, on the whole, contributing very materially to decrease the saving of life.

American Medical Biographies.

FIRMIN, GILES (1615-1697).*

GILES FIRMIN practised medicine all his life, although his chief reputation was gained as a religious writer and dissenting divine in England, after he was thirty years old. Dur-

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

ing his early manhood he served the inhabitants of Ipswich, Massachusetts, as physician, for six years, and he may have practised in Boston previously. He lectured on anatomy, and his teaching stimulated the General Court to pass an act in 1647 reciting the necessity for the study of anatomy and authorizing students of medicine to read anatomy and to "anatomize once in four years some malefactor."

In a letter to Governor Winthrop, dated at Ipswich, February 15, (1640?). Firmin says: "... only for matter of employment I have as much here as I desire and love my planting more than it, only the highest ambition of my thoughts and desires are to be useful and servicable here in a common way. . . We have divers very ill; and fluxes and fevers, I observe, are very dangerous."

Firmin was born in the County of Suffolk, England, in 1615. His father, Giles Firmin was an apothecary of Sudbury, who came to New England in the fleet with Winthrop, was chosen deacon of the church at Boston, and died in that town previous to October 6, 1634, being selectman at the time of his decease. The son studied at Cambridge, England, under the tutorship of Thomas Hill, D.D., entered Emmanuel College in 1629, but did not graduate; accompanied his father to Boston and was admitted to the First Church before October 11, 1632, as established by the records of that church. Probably he returned to England before the fall of 1634, and was a student under Dr. John Clerk (written also Clarke) of London (1582-1653) president of the College of Physicians, 1645-1649, for in a letter written by a Mr. Robert Harmer concerning a religious controversy, about the year 1645 we find this: "Quaereries put to some independents of C. (Colchester) upon an occasion of a sermon preached by Mr. F. (Firmin), an independent apothecary physician, sometime servant to Dr. Cl. (Clerk) of London." In "The Real Christian," a popular book published by Firmin in England in 1670, and reprinted several times, he says that when his father died in the fall of 1634 he was "far distant," meaning probably that he was at his studies in England. It is likely that his father's death terminated those studies for he says in his "A Serious Question Stated," a pamphlet: "Being broken from my study in the prime of my years, from eighteen years of age to twenty-eight, and what time I

could get in them years I spent in the study and practise of physick in that wilderness till these times changed, and then I changed my studies to divinity."

Firmin was in Boston in March, 1637-8, as he mentions being present when Mrs. Hutchinson was excommunicated on the twenty-second of that month (Separation Examined, page 120). His name first appears in the records of the town of Ipswich, January 4, 1638-9, when he was granted by the freemen of that town, one hundred acres of land on condition that he would live there for three years. The town had been settled only five years and the number of inhabitants was small, for the town records tell us that in the first nineteen years, 1633 to 1652, the total number of male inhabitants over twenty years of age was 332. Therefore we are not surprised to learn by a letter to Governor Winthrop, under date of October 10, 1639, that Firmin asked permission to settle in another township and to sell his land. He says: "I am strongly sette upon to study divinitie, my studyes else must be lost; for physick is but a meene help." The apostle John Eliot says of him, writing September 24, 1647: "We never had but one anatomy in the country, which Mr. Giles Firmin, now in England, did make and read upon very well." As Dr. O. W. Holmes points out, Firmin may be regarded as the earliest lecturer on anatomy in the country.

Sometime before December 26, 1639, Dr. Firmin married Susan, daughter of the Rev. Nathaniel Ward, an English barrister and for three years minister of Ipswich, author of "The Body of Liberties," a codification of the laws of the Colony, and of a satirical tract called "The Simple Cobbler of Aggawam," an early name of Ipswich. Firmin speaks of having had three of his children baptized by ministers who never looked at him as a member of their church (Sober Reply to Mr. Cawdrey, page 20). The father-in-law was very poor, resigned his pastorate and was anxious to return to England, as is shown by his letters to Governor Winthrop. Dr. Firmin sailed in the fall of 1644, leaving his wife and children to follow with her father in 1646. He was shipwrecked off the coast of Spain, but reached England in the following year for he preached in Colchester, July 30, 1645. There he was attacked for his independent views. He preached

whenever the opportunity offered, engaged in theological controversies, and wrote many pamphlets. He moved to Shalford in 1646, was joined by his family and was ordained by the Presbyterians when thirty-six years old as minister of the church, only to be turned out with others of his brethren in 1662 when the Act of Uniformity went into operation, thereby losing his living and becoming a "Dissenter."

In 1672, on the Declaration of Indulgence, he set up a meeting at Ridgwell and there he continued until his death in April, 1697. During the ten years from 1662 to 1672 Dr. Firmin supported his family by the practice of medicine; apparently it was now more than a "meene help," for by the Five Mile Act of 1665 dissenters were prohibited from coming within five miles of any incorporated town, or of any place where they had been settled as ministers.

Calamy (Calamy's Baxter, page 244) says of Firmin: "He practised physie for many years, and yet was still a constant and laborious preacher, both on the Lord's days and week days too. . . He had one considerable advantage above his brethren, which was the favour and respect which the neighboring gentry and the Justices of the Peace had for him, on account of their using him as a physician. . . The poor applying themselves to him, had often both advice and physie too for nothing; and of those who were more able, he took but very moderate fees; whereby he lost the opportunity of getting an estate, which had been a very easy thing."

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WALTER L. BURRAGE, M.D.

Book Reviews.

The Future of the Disabled Soldier. By C. W. HUTT, M.A., M.S., P.H.S. New York: William Wood and Co. 1917.

The problem of dealing with our disabled soldiers and sailors is discussed in this volume. The arrangements for treatment and the methods adopted for the restoration of the health

and industrial efficiency of the disabled, and the methods available for finding employment, are presented. A description is given of the measures adopted abroad—in France, Germany, Canada, Australia, New Zealand and the United Kingdom. Various industries are discussed with regard to their adaptability to physical defects. The appendices deal with facilities for special treatment, occupations suitable for defectives, the number of males employed in various occupations in England and Wales, training classes for the disabled, the degree of incapacity caused by injury and their corresponding pensions, the training of the disabled soldier and sailor in Lancashire and the the veterans' club.

Long Heads and Round Heads. By W. S. SADLER. Chicago: A. C. McClurg and Co. 1918.

"Long Heads and Round Heads" is an ethnic study of the German people, and an attempt to answer from the anthropological point of view the question: "What's the matter with Germany?" The book reviews briefly the history of European civilization; it describes the Heidleberg man, the Neanderthal and the Cro-Magnon man. The author believes that the battleground all through the ages has been Western Europe, where geography has enforced contact with Western migration. Race competition between "long heads" and "round heads" and the characteristics of the three great European races—the Nordic, Mediterranean and Alpine—are discussed with an insight which makes it possible to apply history to modern times and to the future. Germany's present reversion to barbarism is explained as a result of persistent racial substitution; the inferior round-headed Alpine stock in Southern Germany has been crowding steadily northward for two or three hundred years, and has numerically overwhelmed the higher Nordic type which originally constituted the German race. The Thirty Years' War and the Revolution of 1848 are partly responsible for this condition. The author gives a warning to the American people in his discussion of the "melting pot," and maintains that race rather than democratic institutions, is still the determining factor. The book contains, furthermore, a description of the German educational system, the Kaiser's dream of world power, Prussia's contempt for military law, her doctrine "might is right," and an explanation of the German "Superman" as "Supermania." Germany is considered a menace to civilization, and twenty-five reasons are given why we should win the war.

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INFLUENZA IN BOSTON AND VICINITY.

A RECRUDESCENCE of the epidemic of influenza and pneumonia has been observed in various localities during the past fortnight. Forty-seven new cases of influenza and six deaths, and five deaths from pneumonia have been reported in Boston recently. The health authorities believe that the new cases were caused by congestion in elevated trains. Fifty members of the Harvard S. A. T. C. are under close observation, although only three or four cases show actual symptoms of the disease.

It was reported at the Northeastern Department Medical Headquarters recently that the disease had broken out again among the United States Guards Battalion of the Springfield Armory, thirty-nine cases being under treatment. Seven sailors were taken from one of the patrol boats which arrived at Charlestown Navy Yard a few days ago and were sent to the Naval Hospital, Chelsea.

In Brockton, one hundred and twenty-one new cases have been reported. In Lawrence, it has been estimated that the deaths from influenza have exceeded by more than three hundred the city's war toll. Deaths from September 26 to November 21 have reached four hundred and fifty-five. Many new cases are being reported.

An investigation of the causes and spread of the disease has begun at Gallups Island. Nearly one hundred volunteers from the naval forces, including some members of the medical staff, will be used. The United States Public Health-Navy Hospital at Quarantine, Gallups Island, is being used for the work. It was at first intended to make the tests at Bumkin Island Hospital, but as there are more than one thousand sailors in training there, it was thought best to change to Gallups Island. There the experimental squad can be completely isolated, there will be no danger of complications by contact with other persons, and there will be no danger of a spread of the disease beyond those engaged in the work.

Capt. John M. Edgar, medical director for this Naval district, is in command of the entire work, with Lient.-Commander Milton J. Rosenau, in charge of the local research work for the navy.

The volunteers will be exposed to the influenza bacillus by contact and by having it placed directly in their nostrils or throat and in every other possible manner. Some groups will be inoculated with bacterial vaccine to observe the effect as compared with noninoculated groups under identical conditions.

The outcome of these experiments will be awaited with great interest.

CHILD CONSERVATION.

DURING the last year, the nation has been thoroughly awakened to the importance of child conservation. The work accomplished in Massachusetts by the Committee on Child Conservation is reviewed in the September and October issues of the *Commonwealth*. A survey including an exhaustive study of the mortality and morbidity statistics of children under the age of five years has been made of every city, town, and village in the State. The three factors which have been considered most important in child conservation are pregnancy care, obstetric

care, and infant feeding; efforts have been made to provide competent, continuous medical care for that part of society which it has not been able to reach otherwise.

For many years, there have been excellent agencies engaged in baby welfare work, but these agencies have been located for the most part in the larger cities and towns. Similar agencies have been established in localities where little work was being done. Far-reaching plans have been made in order that every prospective mother may be guarded from the beginning of her pregnancy till the birth of her baby, and so that the baby may be supervised during the early period of life. This program included the creation of pregnancy clinics; free hospital beds have been provided where pregnant women may have competent obstetric care; milk stations and well-baby clinics have been established where the baby may be protected from infancy to sturdy youth.

In order to carry out this program efficiently, a public health nurse was appointed for each health district in the State and an additional nurse was assigned to Boston.

These nurses were selected with the greatest care, and all of them had had not only public health training but a considerable amount of experience in actual public health field work for children. Whatever success has been attained has been due in no small measure to the efficiency of these nurses. They have brought to the committee great enthusiasm and devotion, as well as intelligent and constructive suggestions.

In making the surveys the nurses have visited the representatives of the boards of health, the child welfare agencies, the visiting nursing associations and other private or church organizations which were doing child welfare work. They have received also information by personal investigation concerning the actual work being done by these organizations. From these facts the nurses have made to the committee certain suggestions for development of the work which seemed to them desirable in that particular community.

The committee has tried to stimulate local publicity both for the raising of funds to carry on the work and for the awakening of interest in the importance of child conservation. This has been done by letters and by distribution of literature; also many public meetings have been

arranged where talks have been given by several members of the committee.

At the beginning of the work the committee planned to include all parts of the child conservation work, *i.e.*, infant care, school hygiene, juvenile delinquency, child labor, day nurseries, etc. It was impossible to cover this entire field adequately, and so it was decided for the first year to consider only the care of the child up to school age. The usual procedure has been departed from in many instances where the other problems were closely linked up with this portion of the work.

A summary of this year's work shows that 65 committee meetings and 11 supervisors' meetings have been held. Three hundred and twenty talks have been given. The number of persons reached is estimated at 18,406. \$53,930 have been spent in this work. Thirty-one nurses and two dietitians have been employed. Thirty child-welfare stations, two sick-baby clinics, and eight pregnancy clinics have been opened.

In addition to the review of the work done by the Committee on Child Conservation, this bulletin includes several articles dealing with obstetrics, infant feeding, and mental hygiene.

THE VENTILATION AND HEATING OF SCHOOLHOUSES.

At a public hearing held at the State House, June 11, 1918, the appointment of a special committee by the Chief of the District Police, for the purpose of studying the problem of the ventilation and heating of schoolhouses, was urged.

This committee has been appointed and consists of a representative from the District Police, one from the State Board of Education, one from the State Department of Health, an architect, and a heating and ventilating engineer. The committee has held several meetings and realizes that the subject is one of great magnitude, involving the health and comfort of thousands of school children and school teachers. It is of vital interest to every citizen whose children are being educated in our public and private schools; to every city or town or corporation maintaining public or private schools; to school and health officials who educate and care for the health of pupils; to engineers, architects, and builders, who design and erect our school buildings; and especially to the public who pro-

vide funds for the erection and maintenance of schools.

The committee proposes to hold meetings at the State House, Boston, in order to gather all the information possible on both sides of the question. The first hearing will be in Room 446, State House, December 14, 1918, at 10.30 a.m. A second hearing will be held December 16, 1918. All physicians interested are urged to come.

MEDICAL NOTES.

JOHNS HOPKINS UNIVERSITY.—The recent influenza epidemic and its relation to pneumonia were discussed by the National Academy of Science at its closing session at Johns Hopkins University on November 19. Professor William J. MacCallum of Johns Hopkins, Professor Wolbach of Harvard Medical School, and Colonel Victor C. Vaughan of the Surgeon-General's office at Washington took part in the discussion, which was devoted chiefly to Pfeiffer's bacillus, discovered in the influenza epidemic of 1892.

Colonel Vaughan presented a paper on the distribution of diseases, and dwelt particularly on measles and pneumonia at army cantonments. He found out last winter and spring that there was a greater susceptibility to these diseases among Southern men than among those from the North; among men from the rural districts than among those from the cities.

He ascertained that people from the country cannot stand "herding" together, so that the strong farmer boy is more likely to contract measles or pneumonia than the department store clerk, despite the fact that the farmer boy is very likely to be the stronger of the two.

HENRY PHIPPS INSTITUTE.—The fourteenth report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis describes various phases of research work carried on by the Institute. An article dealing with "Dietary Habits and Their Improvement" discusses the conditions which lead to tuberculosis among the laboring classes. A study of Italian, Negro, Russian, Jewish, and Polish families disclosed the fact that the dispensary patient gets about four-fifths of the amount of food that he should. This continuous subnormal

amount lowers his resistance, and if there is any additional strain put upon him, he readily falls the victim of disease. Among children it has been found that those designated as tuberculous or pretuberculous have made amazing gains in weight with proper nourishment. It is essential to teach people the quantity and quality of food desirable and the relative values of different foods.

A study of "Pregnancy and Pulmonary Tuberculosis" shows that the combination of pregnancy and pulmonary tuberculosis is a frequent one. Pulmonary tuberculosis exerts little or no influence against conception and but little influence on the course of pregnancy; and except in the advanced stages, it exerts little or no influence toward causing abortion, miscarriage, or premature labor. A review of eighty cases from the Henry Phipps Institute shows that 5 were improved by pregnancy; in 69 cases there was no change, 2 became worse, 2 deaths occurred, in 3 cases pregnancy was interrupted, premature labor was induced in 2 instances, there were 4 miscarriages, and 63 infants were born alive, 13 dead, and 1 stillborn.

Other articles presented consider, "The Abiotic Action of Ultra-Violet Light," "Bactericidal Fluorescence Excited by X-rays," "Note on a Wet Condenser Suitable for Continuous High Potential Service," "On the Electrolytic Diazotation of an Aliphatic Compound," "Dichloramine-T. and Chlorinated Eucalyptol 1.2," "The Preparation of Halogen Derivatives of Catechol, Homo-Catechol, and Pyrogallol Methyl Ethers and Sulfonic Acids," "Notes on the Use of Large Glass-stoppered Containers in Autoclaving," and Parafuchsine as a Stain for Tubercle Bacilli."

WAR NOTES.

WOUNDED SOLDIERS LANDED AT NEW YORK.—A transport from France landed 426 wounded and convalescent American soldiers and 24 officers at Hoboken on November 23. The men were taken in Red Cross ambulances to the new army hospital at Eighteenth street and Sixth avenue. These American fighters were that hospital's first patients, as it was opened on that day for their reception. The staff consisted of 400 enlisted men, 45 physicians, and about 70 regular army nurses, headed by Surgeon-Major W. J. Monaghan of the Medical Corps.

MAJOR-GENERAL GORGAS RETIRES.—Major-General William G. Gorgas, former surgeon-general of the Army, will retire on December 1. Although he reached the age of retirement several weeks ago, General Gorgas was recalled to active duty to make a special investigation into matters pertaining to the health of the Army, and his report has been given to Secretary Baker.

ARMY WILL TRAIN MORE NURSES.—The Army School of Nursing will continue to accept applications from young women who desire to train as nurses. Additional student nurses will be needed for several months at army hospitals, camps and cantonments. The present reserve of 3,000 student nurses is steadily being reduced, the greater proportion being assigned to army hospitals receiving sick and wounded now being returned from overseas.

ARMY SURGEONS ASSIGNED.—The following doctors who have been in training at Camp Custer, Battle Creek, Michigan, have received assignments to replace Coast Artillery surgeons who have gone overseas with Heavy Artillery regiments:

Captain Jacob Clerk and Lieutenant Arthur M. Crandall, to Fort Adams, Newport; Captain Howard G. Nunisberger and Lieutenant Howard D. Eaton, to Fort Williams, Portland; Captain Elmer H. Jones and Lieutenant Charles W. Lonenecker, to Fort Andrews, Boston; Captain Thomas Lucaet to Fort Revere, Hull; Captain Hubert A. Mount, to Fort Strong, Boston; Lieutenant Vinton G. Black, to Fort Warren, Boston; Lieutenant Oliver P. McCartney and Jesse M. Mecum, to Fort Banks, Winthrop; Lieutenant Charles A. Orr, to Fort Rodman, New Bedford.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Nov. 23, 1918, the number of deaths reported was 257 against 216 last year, with a rate of 17.09 against 14.58 last year. There were 43 deaths under one year of age against 33 last year.

The number of cases of principal reportable diseases were: Diphtheria, 39; scarlet fever, 17; measles, 4; whooping cough, 4; tuberculosis, 59.

Included in the above were the following

cases of non-residents: Diphtheria, 5; scarlet fever, 2; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 1; whooping cough, 1; tuberculosis, 21.

Included in the above were the following non-residents: Tuberculosis, 1.

THE TRAINING SCHOOL OF PSYCHIATRIC SOCIAL WORK AT SMITH COLLEGE.—In order to be of service to the Government in a time of unusual stress and to assist in salvaging the human wreckage of the war, a course in psychiatric social work was offered at Smith College last spring. Between sixty and seventy students, varying in age from girls just out of college to experienced social workers, were selected on the evidence of previous training and general fitness. The course was instituted at the proposal of the National Committee for Mental Hygiene, and was established with the assistance of the Boston Psychopathic Hospital.

It was not the intention of the training school to give to its students a complete course in psychiatry or to prepare them to diagnose or treat on their own responsibility the types of cases which were studied during the course. Its purpose was rather to teach the fundamental principles of human behavior both normal and abnormal, social and antisocial. With this end in view, the courses in psychology, sociology and social psychiatry all aimed to show the adjustment which is necessary if man's primitive instincts and desires are to find adequate and constructive outlet in the environment which modern civilization offers. The course in social psychiatry endeavored to show to what degree abnormal and antisocial behavior results from the inability to make such adjustment. Only those mental conditions were studied which have been found to be related to the war neuroses and psychoses.

The physicians who planned the course realized the responsibility of attempting in a period of eight weeks' time to teach a group of lay workers, without previous medical training, representing a wide range of ages, with a variety of educational backgrounds and various degrees of maturity, the principles of mental disease, in as thorough a manner as it might be done in our best medical schools. However, when all things were weighed in the balance, it was felt that the time of a world war and the need which was already being felt in our country

as well as in others for trained workers of this type to assist in the reconstruction of returned soldiers were sufficient reasons to justify a method of procedure which in other times and under less pressing needs might be considered a risk.

The first eight weeks of the course were devoted almost entirely to the theoretical side of the problem; the practical work is to be gained during the following six months. The ultimate success of the course, however, depends largely on the further coöperation of the psychiatrists in recognizing the ability of these specially trained workers, in giving them sufficient scope in exercising their ingenuity and in helping them to apply the knowledge that they will have acquired during their eight months of training. Above all, it is to be hoped that these social workers and others to be trained later in similar courses will be of invaluable assistance in the field of mental hygiene, which has even greater possibilities than that of the very imperative but more limited field of the reconstruction of the soldiers who will suffer from the war neuroses.

NEW ENGLAND NOTES.

SCHOOLS CLOSED IN JAMESTOWN, R. I.—The public schools in Jamestown, R. I., were closed on November 19 for the remainder of the week because of the renewed outbreak of influenza. Thirty cases were reported. The town has not been entirely free from the disease since the epidemic in September.

Miscellany.

RECENT DRUG PRICES.

REPORT from New York on October 15 notes a further rise in the cost of various essential drugs, chiefly due to the influenza epidemic and to large government contracts, notably aspirin, phenacetin, and quinine. Jobbers, wholesalers and manufacturers were jammed with the greatest deluge of orders for influenza and "grippe" combating drugs that has ever been seen here. There was a tremendous carry over of business over the holiday, and in order to meet it many of the local jobbers were forced to suspend all deliveries over the counter, accepting only orders in their turn. New high price levels were established on the market leaders. Sales of camphor were noted at steadily advancing prices. Early in the day

there were transactions at \$3; later on at \$3.25; then at \$3.50, and finally \$3.75 and \$4 a pound was quoted with offers exceptionally difficult to locate at any price.

A big business was closed October 14 in acetyl-salicylic acid or aspirin at \$2.50, and at the close of business quite a number of holders were reported to be asking as high as \$3 a pound. London advices said that heavy demand had put aspirin up to 16s per pound, net, with the present cost of manufacture hardly justifying makers in selling below 15s for forward delivery.

Quinine continued in active demand with the domestic quoted at \$1 an ounce and the Java at 88 cents. It is expected that the latter will take a sharp curve upwards because more than 150,000 ounces of it have been taken out of the market in the past two or three days. In London up to 4s 3d is asked for quinine sulphate.

Assafoetida was inquired for in extraordinarily heavy volume, principally from Baltimore and other points in the Southeast. Sales were effected at \$2 to \$2.15 a pound for the whole, with powdered selling at \$2.15@ \$2.25 a pound. The large demand from the South is the result of the introduction of this article to the colored population as a preventive.

In addition to the commodities enumerated above, antipyrine, and acetphenetidin continue to be taken in large volume for the influenza. Offers of menthol continued to reach the market at \$5.75@ \$6 a pound, although the activity was not so pronounced in the latter item. Benzoate of soda ruled firm at \$2.90@ \$3 as to holder, while permanganate of potash was steady at \$1.75@ \$2, with offers of 1000 pounds at this figure.

Sales of citric acid went through in the trade at \$1 a pound. Makers report a run on citric and are consequently allocating orders. Apparently the druggists are in need of citric acid for use in preparing citrate of magnesia. There has not been any revision of prices for iron and quinine citrate as yet, but it is expected that prices will be revised upwards. Other citrates are meeting with a good demand.

The past few days have constituted an epoch-making period in all quarters of the wholesale drug and chemical market. Growing strength throughout the various groups of drugs has attested to the unusually heavy demands. The Government has reentered the market for huge quantities of drugs and chemicals, calling for bids to be opened on 119 separate items on Oct. 18. Every item on the list, from acetanilid to xylol, inclusive of all the various intermediates, as well as crude drugs, laxatives, narcotics, antipyretics, etc., have been in demand and the price trend has been steadily higher.

Pharmaceuticals necessary for checking influenza have all been in active demand and have attained new record price levels. This in-

cludes camphor, quinine, citric acid, the citrates, aspirin, laxative bromo-quinine, acetphenetidin, antipyrine and menthol. In addition to the very sharp advances which have been named in the above, it is felt in the drug trade that before long substantial advances will occur in boric acid, ammonia muriate, nitrate of silver, petrolatum, soda-bromide, aromatic spirits of ammonia and iodide of potash.

In the latter part of September domestic refiners of camphor announced a jump of 10 cents a pound in their schedule, establishing the market on the basis of \$1.34½ a pound bulk in barrels; \$1.35 for cases of 100 blocks; and proportionate advances of all other sizes. Owing to urgent inquiries and lack of supplies second hands advanced the price to \$1.75@2. Immediately the seriousness of the epidemic was manifest the market was besieged with more orders than it could take care of. In a very brief time, the spot price had jumped to \$3 among second hands, and then it became evident that nothing was available in small sizes and that offers of 2½-pound slabs were also extremely limited.

Very bullish reports have been received from Japan during the past few weeks about the position of menthol. Cablegrams from Japan tell of an advance to a basis of \$5.30 a pound in bond, equivalent to \$5.80 a pound duty paid.

Quinine has been more or less excited as the result of the heavy orders placed by the Government and the heavy demand which developed from the civilian trade where it was principally utilized for combating the grip epidemic. Domestic manufacturers have not altered their quotations, maintaining prices at 90 cents an ounce in 100-ounce lots, at which price considerable of the demand was supplied. Towards the middle of October great difficulty was encountered by the manufacturers in taking care of the demand. As a result, second hands began getting the business and heavy sales were put through at 95 cents for domestic and up to as high as \$1 and \$1.05 an ounce was quoted.

Citric acid was one of the strong and active features in the general list of pharmaceutical drug products. The abnormal demand was coincident with the news of the sinking of the Italian steamship *Alberta Treves* with a cargo estimated at not less than 1,000,000 pounds of citrate of lime. As the result of the great loss of crude material for citric acid production, the manufacturers of citric acid announced a flat advance of 10 cents a pound, establishing

the market at 92 cents for crystals and 92½ cents for the powdered, with the usual premium of ½ cent a pound asked in kegs. There was an advance among second hands to a level of 97 cents for citric acid.

The steamer *Alberta Treves* carried in addition to citrate of lime, a large cargo of Sicilian essences, and following her sinking there was a marked upward movement in the essential oil of bergamot, which hit \$9 a pound in some circles. Lemon oil also was a very strong item on the general list of essential oils, with dealers quoting it at \$1.45 and \$1.50 a pound as to brand.

Acetyl-salicylic acid or aspirin has been one of the products in which trading has been decidedly active. An order for 35,000 pounds of this material was awarded by the Government on Oct. 13, which accounted for a large portion of the production. With the spread of the influenza epidemic the demand for aspirin became broader than at any time in recent years, with the result that spot prices crossed \$2.25 and \$2.50 a pound. Production at present seems to be heavily taxed despite the large increase in the number of domestic, as well as Canadian and other foreign makers.

All of the various ammonia products have come in for a great deal of attention during the past few weeks. There is a great shortage of sal ammoniac, and prices for the U. S. P. article have gone up to 30 cents in some quarters of the trade, with commercial white and gray sal ammoniac now held at 25 cents a pound. The Government has taken control of the various ammonias, especially sal ammoniac, and stock available for the civilian trade have consequently been cut to small proportions. Sal ammoniac lump and genuine crystals, which are manufactured in England, is now nearly exhausted in this market, and a level of \$2.25 @ \$2.50 has been attained here. There are reports that a domestic substitute is being offered at about 75c@1 a pound, but this has not been found adaptable to necessary requirements of the trade.

Glycerine recorded a further net decline amounting to 3 cents a pound on the chemically pure grades in accordance with the agreement between domestic soap manufacturers and the United States Government to supply the Allies with dynamite for the next six months at fixed prices. New offerings of the chemically pure grades are coming out at 57 cents a pound in drums while the dynamite grade is being quoted at 58 and 58½ cents; the crude saponification at 38 cents, and the soap lye crude at 35 cents a pound. The decline in prices is automatic and is expected to continue for the period of the international agreement.

CANADIAN ARMY MEDICAL CORPS.

THE Bulletin of the Canadian Army Medical Corps, Volume 1, Number 3, for June, 1918, contains an article giving the results of a combined inquiry into the presence of diphtheria and diphtheroid bacilli in open wounds. The following conclusions were reached:

(1) Morphologically and, in the early stages, culturally, diphtheroid bacilli from wounds are many of them, indistinguishable from *B. diphtheria*.

(2) Harmless, non-toxic bacilli may be present in wounds affording cultures possessing the same sugar formula as regards dextrose, lactose, saccharose and dextrine, as does the true virulent Klebs-Loeffler bacillus.

(3) It is not justifiable, therefore, to make a diagnosis of diphtherial infection of wounds, either from smears alone or from stained preparations and cultured characteristics. The demonstration that the bacilli produce toxins—ectotoxins—i.e., the result of inoculation of broth cultures, is alone capable of proving the presence of infection by the true virulent *B. diphtheria*.

(4) By the staining, cultural and fermentation tests, four cases of apparent diphtheria infection have been detected in a careful bacteriological study of 306 cases of open wounds. By the decisive test of inoculation these are reduced to two.

(5) There is a large body of evidence showing that even isolated cases of diphtheria infection of wounds are distinctly uncommon among the wounded overseas, and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of the infection to other wounded men. No evidence of a widespread infection of open wounds by diphtheria bacilli has been discovered in Canada hospitals overseas in Great Britain.

(6) Diphtheroid bacilli of various orders, while not common, are, as might be expected, more frequent in open wounds. There is no evidence that these have exerted deleterious effects.

(7) There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals.

A report on an investigation of the after-effect of wounds of the chest and their treatment presents the following conclusions:

(1) Deformity of the chest wall is a very important disabling after-effect of gunshot wounds of the chest.

(2) This deformity follows most frequently prolonged involvement of the pleural cavity.

(3) The early and persistent evacuation of fluid from the pleural cavity, either by aspiration or by operation, is of great importance in preventing the development of the deformity. Especially is this so in cases of haemothorax.

(4) The early use of special exercise is beneficial in preventing or overcoming this deformity.

(5) The prognosis in this condition is exceptionally good under suitable treatment.

It was concluded in a report on the examination of the sputum for albumin in pulmonary tuberculosis and chronic bronchitis that:

(1) In chronic bronchitis the albumin test is invariably negative.

(2) In cases of suspected tuberculosis without definite signs about 87 per cent. give a positive reaction, and *probably* 60 per cent. of these show the organism within two or three months.

(3) In cases of clinical tuberculosis 79 per cent. will show albumin if the sputum be taken during an elevation of temperature, but albumin is nearly always absent from sputum collected when the temperature and pulse are normal or subnormal.

(4) In about 98 per cent. of cases of proven tuberculosis, the albumin test is positive at some period in the course of the disease.

(5) In examining sputum for albumin, whether the case be one of suspected, clinical, or proven tuberculosis, a negative result gives no information unless the sputum be taken over a period of time on successive days and during a rise of temperature. In other words, choose a febrile period for taking the sputum, as albumin will be present then if ever.

The Bulletin contains, also, articles on "Chronic Hypertrophic Pulmonary Osteo-Arthropathy following Bronchiectasis" and "Delayed Tetanus." An account is given of the regular meeting of the Etchinghill Clinical Society, in which the treatment of chronic gonorrhoea was discussed. The Bulletin contains, also, administrative notes and corps news.

The Boston Medical and Surgical Journal

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SOME PHASES OF THE SURGERY OF THE STOMACH AND DUODENUM.

BY JOHN T. BOTTOMLEY, M.D., F.A.C.S., BOSTON.

WE all have ideals in the practice of our profession. How close we come to attaining them depends somewhat upon ourselves, our possession or lack of force, courage, honesty, enthusiasm and perseverance and somewhat, too, upon intrinsic conditions and surroundings over which we may have limited or no control. Unfortunately, not all of us may work under the wonderful conditions that obtain in Rochester—a monument to the foresight, the ability and the personality of those supermen, the Mayos—nor may we labor in connection with great schools and universities as do a few of our confrères in great cities. Many of us, probably most of us, must necessarily carry on under average and far less satisfactory circumstances and, as one of the many, it may not be amiss for me to draw, for the text of my remarks this evening, on my work of the past year in a field that interests us all. It is only fair to state that this work has been done not in one but in many hospitals in Boston and New England. It often necessarily involved the speedy making of a working diagnosis and a very loose control of the after-care of patients.

The surgery of the stomach and duodenum has had its greatest development in the present century. What was rare in 1900 is commonplace today. The smallest hospital has its quota of gastric surgery. That once unusual word, "Gastroenterostomy," is now quickly recognized and correctly pronounced even by the editor of the country weekly. Stomach surgery is no longer a cause of wonder to the laity. It will soon be pocketed in the public mind on the same level as surgery of the appendix. We have travelled far in a short space of time. Have we yet come to the limit in our means of recognizing the clinical expression of gastric and duodenal disease or in our treatment of it, operative or otherwise? To a certain extent each man must answer this question for himself. Varying answers will be given by various men. Whatever interest lies in this brief paper exists because of the fact that it represents an attempt on my part to answer these questions through a running comment on my work of a year and on such errors in diagnosis, surgical judgment, etc., as I made in doing it.

This is not the occasion to detail the various diagnostic methods of this field of our endeavor. These are many, as you know. As to their relative importance, it is my feeling that the clinical history, for the surgeon working under average conditions, is easily first. I say

for the surgeon working under *average* conditions because, if one is working under the best conditions, I should want to rate the roentgenologic examination as of ranking importance. But there are relatively few really expert roentgenologists, men who will take a first-class plate of a bothersome duodenum, for example, and, what is more desirable, give a dependably certain interpretation of doubtful plates. For instance, in twenty-six of my cases of the past year in which the x-ray was used as a possible aid in the diagnosis of duodenal ulcer, the report was indefinite in four cases in which the ulcer was present and wrong in six cases. In twelve cases of gastric disease it was wrong or indefinite in two. In other words, in a total of thirty-eight cases it was grossly wrong in seven instances and indefinite in five. Furthermore, in a large percentage of cases in which the roentgenologic report was incorrect the diagnosis based on the clinical history was correct. To the fortunate few, however, who have the services of an expert, I readily grant that roentgenology holds the first place in the diagnostic field; for the many, however, the clinical history must still remain our safest guide. This fact also holds true in other fields of surgical effort than that of the stomach and duodenum and I want to digress a moment, with your permission, to call the attention of this Society, most of whose members are, I assume, visiting surgeons on hospital staffs, to a duty very much neglected by most of us. John B. Murphy used to say that the clinical history of patients entering hospital wards is through habit and custom taken by the lowest man on the house staff, while its very great importance in the study of disease really entitles it to being taken by the oldest and best trained man. Now here, as in most other instances, John B. Murphy was correct. To the youthful surgeon in hospital residence what should be the most valuable feature of his training? The acquisition of proficiency in obtaining an accurate story of the patient's illnesses present and past, in determining the true relation of the latter to the former, in sifting the essential from the non-essential, in making a careful note of the objective signs of disease present, and finally in forming a reasonably correct interpretation of the facts thus gathered. To whom should he naturally look for instruction in this matter? To none other than to us who make up the visiting staffs of the hospitals. Yet

the attitude of the staff in many of our hospitals is one of indifference and neglect. The staff not only makes no effort to teach the residents the science of history taking but the visiting man often fails even to read, not to say criticize, such histories as are taken. I confess that I, too, have been a sinner in the past, but I am trying now to show my repentance by taking a more active interest in this matter and I am being very well repaid.

To return to my theme, I class the diagnostic means as follows: (1) The clinical history, (2) Roentgenologic examination, and (3) Chemical and laboratory tests.

I shall not discuss to any extent the diagnosis of gastric and duodenal disease. In passing, it is well to note that refinement of diagnosis or even a very accurate diagnosis is not always necessary. Under such conditions as I have often met, it suffices to come to a conscientious conclusion as to whether a case is one whose symptoms warrant operation or not. In connection with duodenal ulcer I desire, however, to call attention to a fact that as far as my reading goes is seldom noted. Rapid and marked loss of weight is not uncommonly seen in connection with this lesion—a loss of weight which might lead one to suspect cancer but for the fact that the cachexia so common in the latter is usually lacking here. Two of my cases lost forty pounds each in two months. Many patients with duodenal ulcer are also nervous to a marked degree and any incident which disturbs their nervous equilibrium is very apt to give rise to an exacerbation in their symptoms.

Incision. As with many other things, so with incisions we are creatures of habit. For many years I employed the median epigastric incision for operations on the stomach and duodenum. A certain number of hernias followed even in those whose wounds apparently healed very kindly. I found, too, that hernias following mid-line incisions were very difficult to close satisfactorily. This led me to change my way of approach and now, as a routine measure, I open the sheath of the right rectus muscle, pull the muscle-belly outward and incise the posterior sheath and the peritoneum behind it. Occasionally, if the roentgenologic plate shows an ulcer located high on the lesser curvature, I carry out a similar procedure on the left side. I like this method of approach very much because it not only conserves the nerve supply to the muscles but also affords excellent

protection against the occurrence of hernia, since the posterior scar is covered by the fibres of the strong rectus muscle. The transverse incision I use only very occasionally; considerably more time is required to make it properly and it does not, in my opinion, afford any greater degree of accessibility to the operative field. Its only advantage lies in the fact that far less tension is put upon it in case post-operative distention or vomiting occurs and that there is consequently less danger of extrusion of the intestines in the early postoperative course—something that occasionally occurs through a vertically placed incision.

What surgical procedure shall we apply in the presence of gastric ulcer? In the majority of cases of ulcer at or near the pylorus or in the pyloric end of the stomach, the Rodman operation should be done. In critical cases it may be well to carry out this procedure in two stages, the gastroenterostomy being done at first and the resection postponed for some weeks. The Payr clamp has proved to be a very useful addition to our armamentarium. Closure of the cut ends of the stomach and duodenum has been made easy and safe by its use. With the duodenal end closed, two procedures are offered for our choice, if we plan a one-stage operation. The method now commonly employed is that of closure of the cut end of the stomach followed by the usual posterior gastroenterostomy. The alternative—and I believe it will be used more and more, because of its time-saving—is the Polya operation or the more recent method proposed by Balfour. I have had a limited experience with either the Polya or the Balfour method, but the latter appeals to me very much, since it is easily done and does away with any possibility of undue tension on the suture line and any possible constriction at or near the anastomotic opening by later contraction of the slit in the transverse mesocolon, an objection which in some instances may be urged against the Polya operation. The criticism that the opening between the stomach and jejunum is very large is easily met by narrowing the stomach opening to any desired size and then completing the anastomosis.

To rather well-localized and not too extensive ulcers on the lesser curvature or ulcers so situated that a "sleeve" (midgastric) resection may not be done the Balfour method of turning back a seromuscular flap and destroying

the ulcer with the actual cautery is applicable. Suture of the cauterized area and replacing the flap completes the operation. It is still a matter of question whether a gastroenterostomy should not be added to this procedure in every instance, but I am gradually coming to the belief that any such treatment of chronic gastric ulcer on the lesser curvature or on the posterior wall as excision or destruction with a cautery should always be followed by a gastroenterostomy. The anastomotic opening will drain off the acid gastric juice more quickly, will allow the stomach to rest and will thus afford a better opportunity for healing of the traumatized area to take place. I feel, however, that this method is not so radical or so effective as a "sleeve" resection; the latter I regard as the operation of choice when it can be employed and it has in my practice almost entirely supplanted the former so-called "wedge" excision. A relatively new artifice in connection with it and one with which I have as yet had little experience is that of shell-ing or wiping the vessels with a moist compress off the portion of the stomach or duodenum to be resected. It shortens the duration of the operation and lessens very much the amount of hemorrhage, few forceps or ligatures being necessary. It is surely worth a trial.

I believe that ulcers of the posterior wall are very far from common. Many ulcers which seem to lie on the posterior wall are really ulcers of the lesser curvature which have been pulled posteriorly by the contraction of the scar tissue in and about the ulcer. Codman has called attention to this fact and I have substantiated it many times. Its truth is borne out in practice by the ease with which the gastric vessels are missed in the application of forceps preparatory to severing the gastrohepatic omentum. The vessels are often pulled backward with the ulcer and thus escape the grasp of the forceps.

Many of these ulcers, which at first seem inaccessible and consequently inoperable by the "sleeve" resection method, may be made more or less comfortably accessible by a careful and very thorough separation of adhesions not only along the lesser curvature but of the posterior wall as well. The application of a right-angled clamp above the straight-bladed clamp usually placed transversely across the proximal gastric segment ensures against the slipping of the cut edges from between the blades of the transverse

clamp and adds greatly to the ease and safety of operation. At this point let me again call attention to the value of making the incision in the abdominal wall to the left of the median line, when the roentgenologic plates show a lesion situated high on the lesser curvature. A little gain in accessibility may make possible the operation of choice rather than that of necessity. In the so-called "hour-glass" stomach the most satisfactory operation in my hands has been the so-called "sleeve" (mid-gastric) resection, when that operation has been possible. I believe that this procedure is of far greater value than any form of gastropasty, because through its employment one secures a thorough removal of the diseased portion of the stomach. In January, 1917, I applied the principle of the Finney gastroduodenostomy in an attempted cure of a high-placed "hour-glass" contraction of the stomach. Relief over a period of ten months followed, but then all the symptoms returned and in January of the present year I was obliged to do a "sleeve" resection for a chronic perforating ulcer at the seat of my first operation. This ulcer had penetrated the pancreas and the operation was one of considerable difficulty.

Very extensive ulcers of the stomach, so extensive as to forbid any attempt at direct operation, may be treated indirectly by making a temporary jejunostomy with the object of affording complete rest to the stomach and thus reducing the extent of the indurated area.

A few true ulcers of the posterior wall must be approached by incising the anterior wall of the stomach, destroying the ulcerated area with the actual cautery and closing the opening with a through-and-through chromic cat-gut suture. In these cases drainage of the lesser peritoneal cavity should be done as a routine and a posterior gastroenterostomy should be added that the acidity of the gastric juice may be diminished and its digestive action on the traumatized area lessened. While I believe the latter to be a wise measure and one that should be usually adopted, it is not always necessary: for I may mention in passing that in a chronic perforating ulcer very high up on the lesser curvature which had eaten a deep hole in the left lobe of the liver and which was so adherent to the liver that I did not dare free it because of the danger of hemorrhage. I opened the stomach anteriorly, passed a curved cautery blade into the cavity of the

ulcer and burned it most thoroughly. I did not attempt even a suture. The patient still remains well after many years. On the other hand, during the past year I did a transgastric destruction and suture of an ulcer of the posterior wall and did not do a gastroenterostomy. Recurrence of all symptoms with severe and repeated hemorrhages occurred in six months.

Ulcers on the greater curvature are very rare. I have seen only two; one opened through an umbilical fistula. The umbilicus, the fistulous tract and the ulcer were excised in one piece. Of the other let me speak briefly. —A woman, 32 years old, swallowed a $7\frac{1}{2}$ grain corrosive sublimate tablet. She was given very promptly copious draughts of milk and an emetic and was hurried to a hospital. Diarrhea, vomiting and epigastric pain were severe for a week; then the diarrhea and vomiting gradually ceased, while the pain continued. For some years the patient had had recurrent attacks of appendicitis and now that she was in the hospital both she and her physician felt that the time was opportune for removal of the appendix. I removed it about two weeks after she had taken the tablet. In the routine intra-abdominal examination I palpated her stomach and felt an indurated area on the greater curvature two inches from the pylorus. This proved to be an ulcer and it was easily excised. A careful clinical history taken during her convalescence failed to uncover any evidence of gastric ulcer previous to her present illness. The question naturally arises as to the part played by the very powerful irritant in the production of the ulcer. Personally, despite the word "chronic" in the report of the pathologist, I am convinced that it played a predominant part. The location of the ulcer was very unusual and at a place where such a relatively heavy object as a corrosive tablet might well have rested for a time sufficient to produce a necrosis that would offer excellent ground for the digestive fluid to act on. The influence that irritants in general, such as very hot foods, etc., have in the production of ulcers is by no means definitely settled, but they are certainly worthy of consideration as possible factors of importance. It is a striking fact that in all animals except man cancer of the stomach is very uncommon, while man is very susceptible to it. The reason of this susceptibility is not known. It has been suggested that the chemical changes produced in cooking,

or the seasoning, or even the heat of the food, may have significance in the causation of gastric ulcer which is so frequently the forerunner of gastric cancer.

Certain mechanical features in the making of the anastomotic opening may be regarded as definitely settled. The opening should be placed well to the right and at the lowest level of the stomach. Chromic cat-gut should be used for the suture material to the exclusion of any other. Silk or linen should be used only for supportive purposes and then only in the interrupted form: these only add to the factor of safety and are not really essential. The continuous seroserous suture of silk or linen certainly favored the subsequent formation of ulcers on the mucous surface at or near the anastomotic line and prolonged their duration. Whether the jejunal surface is applied to the gastric surface somewhat vertically or transversely, or whether the application be from left to right or from right to left is, in my opinion, not a matter of importance. The application should be made in the direction in which the most comfortable apposition is to be had. There is danger, too, in locking the approximating clamps too tightly. Not only may the serous surfaces be thus unduly traumatized and the formation of post operative adhesions, which always carry the possibility of causing a kink, be favored but the blood vessels and the mucous surface may be injured and the production of small ulcers in the neighborhood of the anastomotic line be promoted. The too tight application of clamps is particularly apt to take place in patients with thick abdominal walls and in those whose stomachs for any reason are not readily drawn into the abdominal incision. The strong and constant tendency of the stomach wall to pull itself out of the grasp of the clamps forces the surgeon almost necessarily to tighten them. In such cases, too, the occluded fold of stomach is usually not sufficiently ample to permit the making of an opening of adequate size. Coffey's method of anastomosis without clamps is the procedure of choice here.

Personally I use the four-row method of suturing. I am not to be understood as criticizing in any way the five-row method. I regard it merely as unnecessary. I have not yet seen any alarming post-operative bleeding follow the four-row method. The slight bleeding that is occasionally seen after gastroenterostomy is

usually readily controlled by a gentle lavage of the stomach with hot water containing the commercial solution of adrenalin chloride in the proportion of one drachm to the pint of water. Even this I have had occasion to use but once.

The treatment of chronic duodenal ulcer by gastroenterostomy after thoroughly infolding the ulcer and protecting it with omentum is so satisfactory in the very great majority of instances that it must, at present, be regarded as the operation of choice, except in those cases in which hemorrhage is a prominent symptom: in these, either excision of the ulcer or pylorectomy should, as a rule, be done. But judgment should be used in the matter. Pylorectomy and even simple excision in patients with fat or very muscular abdominal walls and in those with the so-called male type of duodenum are difficult operations and increase markedly the operative risk. Some duodenal ulcers lend themselves very readily to excision and should be excised, but excision should always be followed by a gastroenterostomy, a Finney gastroduodenostomy or some such procedure as that recently proposed by Balfour. Even in simple cases, blocking the pylorus adds to the risk of operation and, in my opinion, has not sufficient advantages to compensate for the added risk. As a matter of fact, in the unusual case the decision as to what operation should be done must be left to the surgical judgment of the individual operator. It is not to be denied that hemorrhage as well as other symptoms of ulcer may recur after infolding and gastroenterostomy, but I believe that this holds true of a relatively small proportion of cases and that in many instances the recurrence is due to an absolute neglect of the late post-operative treatment. I am not at all in agreement with those who hold that patients who have been operated on for duodenal or gastric ulcer should quickly return to their usual habits of diet and living. Flint has shown that the healing of the mucous surfaces of the anastomotic opening never takes place under two weeks. It seems to me, then, only a matter of wisdom that patients who have undergone this operation should be held on a fluid or a very soft diet for that length of time at least. We should remember, too, that a duodenal or gastric ulcer represents only a very advanced or the end stage of a pathologic process and that in removing the ulcer we do not remove its cause; consequently

we should, through suitable diet and through the exhibition of alkalies, strive to lessen or overcome the coexistent hyperacidity. Hot foods, irritating foods, alcohol, etc., should be forbidden. It is unfortunate but true, however, that physicians order much while patients follow little. In addition, we should search for and remove any possible focus of infection. My experience, though relatively limited, does not lead me to agree with Moynihan, who thinks, if my recollection is correct, that a diseased appendix or gall-bladder is often the possible cause of duodenal ulcer. In twenty-five recent cases of duodenal ulcer, I found the appendix diseased in only five instances; it was entirely normal in the other twenty. I believe that the source of infection in most cases of gastric and duodenal ulcer is elsewhere than in the peritoneal cavity. The nose, the throat, the sinuses, the mouth, the ears and all possible sources of infection should be examined and, if diseased, have suitable treatment.

The treatment of perforated gastric and duodenal ulcers is closure of the opening by suture or by a plug of omentum. In an occasional case excision of the ulcer is possible. The closure must be accomplished early after perforation, if we are to expect happy results. Every hour after the fifth or sixth adds greatly to the mortality. This is a most important fact. For, if we are going to lower the mortality in these cases, we must do it chiefly through driving the importance of this fact into the lay mind and that of the general practitioner. Education is necessary—education of the layman to the realization that sudden, sharp, prostrating pain in the upper abdomen means trouble that demands a doctor; and of the practitioner to the realization that it means trouble that demands not only surgery but prompt surgery. It is the appendicitis fight of former days transferred to more recent times and to another field. Far more truly than in appendicitis does the fate of patients with perforated duodenum or stomach lie in the hands of the man who is first called and that man is usually the family physician. Again, let it be noted that an absolutely accurate diagnosis is wholly unnecessary. It is not imperative to decide whether or not the perforation is in the stomach or the duodenum or the gall-bladder, or whether or not acute pancreatitis or high intestinal obstruction exists, but it is extremely

important for the patient and it should be imperative for the practitioner to decide and to decide quickly that he is or is not in the presence of a condition, whatever it may be, that is urgent in its demand for surgery. It is far better to err in the direction of doing an unnecessary operation than in that of withholding a necessary one.

Early closure, then, is the treatment that is to be applied. Thus far all are agreed. But shall we add to this procedure a gastroenterostomy? Shall we drain? If we establish drainage, will it be a local drainage in the neighborhood of the perforation or drainage of the pelvic cavity or both? Now we enter into the field of dispute. It is conceded that, if marked obstruction is present, gastroenterostomy should be done. It must be admitted, on the other hand, that such a degree of obstruction is seldom present, too seldom to have great weight in the settlement of this question. It must be granted, too, that when gastroenterostomy is added, it is added not as a life saving measure or even as a means of lowering mortality. The patient who cannot endure a simple closure can bear still less well closure plus gastroenterostomy; the operation is advocated simply as a preventive of subsequent morbidity and this fact, too, must be remembered and weighed well in our survey of the question for a decision. Deaver believes that gastroenterostomy should be adopted as a routine measure and reports a series of forty-six cases (in all but three of which he did gastroenterostomy as a primary measure) with one death. Alexander has recently reported ten cases with no deaths. But we are not all Deavers with his marvelous deftness and wonderful speed. Personally, I do not believe in making gastroenterostomy a routine procedure here. Despite the fact that some statistics seem to indicate that it does not add to the mortality, nevertheless, I cannot but feel that in many instances and in many hands it may do so and may also increase the chance of infection. A very large proportion (50% of the Massachusetts General Hospital series) of those patients who recover after simple closure of the opening recover fully and permanently and live afterwards with no digestive disturbance provided that even semi-sensible care and discretion are practised. In those who are unfortunate enough to have later symptoms a gastroenterostomy can be done, if necessary, with far less risk and far more care

than as a primary measure. If done as a primary measure, it should be regarded not as a routine but as an exceptional procedure. The mortality of perforation is very high in those after middle life and consequently in middle aged and older patients, primary gastroenterostomy should be done only as a matter of necessity.

Shall drainage be instituted in patients operated on for perforated ulcer? At the very beginning of my remarks on this phase of the general subject I want to go on record as favoring drainage, both local and suprapubic, in every case. My reasons for this opinion are these: Admitting, as I do, that in many early cases the exudate is the result of the chemical irritation of the peritoneum by the escaped gastric or duodenal contents and that it is not always infected, I cannot conceive how anyone can tell when the exudate ceases to be the result of irritation only and becomes the expression of irritation and an added infection. At the Boston City Hospital cultures were made from the exudate in thirty-four cases of varying duration. Twenty were sterile and fourteen showed a bacterial growth. Five cases were closed without drainage and one of these died of general peritonitis. At operation six hours after perforation diplococci have been found in both the lower and the upper portion of the peritoneal cavity, when cultures from the ulcer itself were sterile. Alexander has found diplococci in a case operated on as early as four hours after perforation. Now, it is not possible to tell by inspection whether infective organisms are present in the exudate or not; if they are present, no man can measure their virulence or estimate the degree of resistance of the individual patient. In other words, we cannot know very much about the matter, and not to drain is to gamble. Correctly placed drainage will aid nature in her fight against possible infection and should, in my opinion, always be instituted. It is to be noted also that subdiaphragmatic infection causes a large percentage (25% in the Massachusetts General Hospital series) of the deaths after operation for perforated ulcer. While local drainage will not, of course, entirely prevent such infection, nevertheless, I feel that it will lessen the frequency of its occurrence.

The subject of gastric cancer is from many points of view very discouraging. Perhaps its most discouraging feature is the very late stage

at which the disease reaches the surgeon. No more striking comment can be had than the fact that of 527 cases coming within the past few years to several large New York Hospitals, in only 98 of the 408 operated on was an attempt at a radical operation considered justifiable. We all know that many cases of gastric cancer have no early symptoms of sufficient severity to send the patient to a physician and that such cases will always reach the surgeon at a late stage. The remarks already made on the value of public education as a means of diminishing the mortality of perforated ulcers apply with just as much and perhaps more force to gastric cancer. We must make the public realize that, while there may be such a symptom as chronic dyspepsia, there is no such disease and that digestive symptoms not quickly relieved by ordinary measures should be treated by physicians and not by friends. An early radiographic examination should be made in every case with stubborn digestive symptoms. This is at present our best means of early diagnosis of gastric cancer. There is no lack of unity in our ideas as to what should be done in this disease. When it is removable, it should be removed. Even when there is but little or no hope of permanent cure, when all the possibly involved glands cannot be removed, nevertheless as complete a removal as possible of the growth should be attempted, if in the surgeon's judgment a sufficient period of relief from symptoms may thus be secured. The adoption of the two-stage operation has lowered the mortality appreciably. In some cases preliminary jejunostomy may be indicated but certainly only very occasionally. Gastroenterostomy alone has no place in the surgery of gastric cancer except as a means of temporary relief in obstruction of the pylorus. We have all been occasionally surprised by observing the cure of an apparently malignant pyloric tumor through gastroenterostomy. Such pleasant surprises, however, are rare in surgery.

Thalhimer and Wilensky have recently published a study of specimens of gastric cancer removed at operation. The results of their studies is somewhat encouraging to the surgeon who has to deal with gastric cancer—a field wherein even a little encouragement is pleasant. Unfortunately the application of their conclusions touches only a limited field in practice. These investigators found that localized carcinomata situated elsewhere than at the

pylorus very rarely extended microscopically more than one cm. beyond the macroscopical limits of the tumor. In other words, the malignant process is of limited extent. Of course, this fact avails us little, if glandular metastasis is present. It may encourage us to excise some limited growths of the cardia for which gastrectomy would otherwise have to be attempted or else no operation done. It may, too, give us hope that we have got beyond the malignant process in some specimens excised as ulcers which the microscope later shows to be malignant.

The opinions which I have advanced in this paper are based upon my total experience in the field in question and are not the result entirely of my experience of the past year which, however, was sufficiently interesting to prompt me to use it as a text.

A total of fifty cases of gastric and duodenal disease came under my observation in 1917: thirty-six of these represented non-malignant conditions; ten, malignant conditions, and four, immediate and late post-operative sequelae having no relation to the pathology of the disease. Of the non-malignant conditions, twenty-seven (over 50% of the whole) were duodenal ulcers, seven, gastric ulcers (including one hour-glass stomach), and two were ulcers of both the stomach and duodenum. For the relief of duodenal ulcers posterior gastroenterostomy with infolding of the ulcer was done twenty times: at the present writing results are excellent in sixteen and fair in two cases; two patients died as a result of operation. In two cases excision of the ulcer and a Finney gastroduodenostomy was done with one excellent result and one death. Excision of the ulcer and gastroenterostomy was done in one case with an excellent result. Simple closure without further operation was done in one case of chronic ulcer which had perforated into the liver and in one case of acute perforation; both cases recovered and remained well. In the two cases of ulcer both stomach and duodenum the Rodman operation was carried out with excellent immediate and remote results. In the treatment of the seven gastric ulcers "sleeve" (midgastric) resection was done in three patients, all of whom have remained very well; in two (one of whom showed an ulcer in the greater curvature), excision without gastroenterostomy was done; one patient died and the other remains well.

for an ulcer on the posterior wall transgastric cauterization and suture was carried out with an unsatisfactory result, all symptoms recurring in eight months. An unsatisfactory result also followed operation in a case of hour-glass stomach for which a gastroenterostomy (after the Finney method of gastroduodenostomy) was done; the symptoms recurred in ten months and, two months ago, I did a "sleeve" resection with an excellent result thus far.

During the past year I met with two cases of duodenal fistula following operations on the gall-bladder. One occurred almost immediately after operation and the other, strangely enough, did not appear until more than four weeks after the primary operation and ten days after the incision in the abdominal wall had closed. These cases and one of persistent vomiting after a gastroenterostomy I saw in extraurban hospitals and all cases were in a pitiable condition. I believe that it was poor surgical judgment even to attempt operation; but I did operate, hoping against hope. All three cases died.

Of gastric cancer the oft repeated story is again told in this series. Of the ten cases which I saw in hospitals in the past year not one was really suitable for the radical operation. I attempted and did a Polya operation in one case in which I knew I could not remove all the glands; this patient, after four months of comfortable life, died two months later of recurrence. Five cases I have explored and had to be satisfied with making a gastroenterostomy in three and with doing no operation in two. Of the three cases in which I made a gastroenterostomy, one is still living comfortably six months after operation; another lived comfortably for four months, and the third upon whom I operated simply to relieve the persistent vomiting, died after four weeks of comfortable post operative existence, which gave great satisfaction to him and to his family. Four cases were so evidently non-operative that not even an exploratory operation was done; three of these cases died a few days after coming to the hospital.

Now, we do not expect particularly good results in the surgery of malignant disease of the stomach and mine were no exception to the rule. Nor can my results in this particular series of benign disease be in any way construed as brilliant. Let us consider these results a bit further. I know of nothing more

destructive to false pride and of nothing that can be a greater stimulant to honest pride than an analysis of one's results after the method of Codman of Boston. Those of you who have received his strikingly unique and brilliantly original hospital report know what I mean. He bares his surgical soul to the public and to the profession and, I believe, points the way along the road that we all must travel in time. Taking up my burden to follow him, let me first consider the deaths resulting from operations on benign disease.

My first death followed a simple gastroenterostomy for chronic duodenal ulcer in an emaciated woman, 38 years of age, with a very marked degree of ptosis. She began to vomit soon after operation and continued until she died one week later. She lived thirty miles out of Boston and, when I saw her six days after operation, the dilated stomach stood out very prominently in her abdominal field. She absolutely refused gastric lavage, change of position, stopping of fluids by mouth and proctocolysis, said she knew she would get better, and died. Now, how shall we charge up that death? Personally I think the evidence favors the finding that in some way a kink took place after operation and that her death was due—I use Codman's terms now—primarily to an "error due to lack of technical knowledge or skill" and secondarily to "the patient's refusal of treatment."

My second death occurred in a man, 57 years old, with a most indefinite history of gastric symptoms for a period of ten years. He had a huge duodenal ulcer for which I did a gastroenterostomy with infolding. He did perfectly well and ran a flat temperature and pulse chart for six days, when he suddenly shot a temperature and vomited a few times. In a few hours the temperature disappeared, all symptoms ceased, and he ran a normal chart with a pulse of 60 for three days more when he again shot a temperature (102.4°) and again vomited. He lived fifty miles out of Boston and on his second flare-up I advised his local surgeon to see what the trouble was. He opened the wound and drained a "subphrenic abscess." The patient died fourteen days after the primary operation. Again, how shall we classify this death? I do not know wherein I failed, but either my assistant or I probably committed an error of surgical technique sometime during the operation: but, if we did, why

did the patient not give signs of trouble until the sixth day, particularly when the infection was located in a region so rich in lymphatics. Of course, it is possible that infection took place by way of the lymphatics after operation and that the operation itself had nothing to do with the result.

Pneumonia caused my third death. It happened in a fine middle-aged man whose duodenal ulcer I excised, following the excision with a Finney gastroduodenostomy. He developed a right-sided pneumonia, from which he was recovering nicely, when the left lung became involved. He died on the thirteenth day after operation. A skilled anesthetist gave the ether and I must classify this death under the "calamities of surgery or those accidents over which we have no control."

My fourth fatal case happened in a man of 49 who had been having dyspeptic symptoms for fifteen years and who for some months before operation had been failing rapidly. I found a large ulcer on the vertical portion of the lesser curvature, excised it and drained the lesser peritoneal cavity. This man whom I did not see after operation but who was in charge of a most capable physician "just petered out" and died in four days. There was no sign of hemorrhage or of infection. I must divide the responsibility for this death between "error of surgical judgment" on my part and "the patient's poor condition."

The deaths in the series of malignant cases were all due to "the patient's unconquerable disease."

Now as to errors of diagnosis. In this series of fifty cases there were seven errors in diagnosis. In two cases of chronic duodenal ulcer the pre-operative diagnosis was gallstones. Curiously enough both of these patients were at the Carney Hospital. In another case of duodenal ulcer, pyloric cancer and, in still another, beginning high obstruction of the small intestines were the pre-operative diagnoses. One case of chronic gastric ulcer was operated on under the diagnosis 'chronic duodenal ulcer' and another under the diagnosis 'chronic duodenal ulcer (?)'. In a case of chronic appendicitis a chronic gastric ulcer was unexpectedly found on the greater curvature of the stomach. All but two of these errors in diagnosis were made in extraurban hospitals, when I had to make a prompt working diagnosis from a rapidly taken clinical history.

None of the errors were gross nor were they serious in any way.

Gentlemen, I have been to confession to you tonight and confession always chastens the spirit. We all have ideas on subjects and in fields that interest us, but, to paraphrase a sentence of Claude Bernard, we must so hold those ideas as to be willing always to submit them to facts and be ready to modify and even abandon them, if our observation of facts points convincingly in that direction. Results are facts and to results we must submit our surgical ideas, if we hope to advance surgically.

Selected Papers.

SPEECH-READING FOR THE WAR DEAF.

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(Concluded from page 700.)

III*

To the teachers of speech-reading who are to be definitely employed under government direction and to those who, later, contribute by voluntary effort toward the re-establishment of the deaf soldier in civic life, some knowledge of the conditions creating their opportunity will be worth while, and the following extracts from official medical reports, comprehended in this communication, may serve as a basis for a better understanding of the corrective work soon to be in process.†

As to the number of cases of impairment of hearing among the wounded, the reports from different war areas vary considerably, and there is not as yet the time for comparison and conclusion, the number of ear cases to the total sick at one of the fronts, and in the evacuation hospitals, being considerably larger than the number evacuated to the rear, sixteen per cent. in the first list and four and one-half per cent. in the second list. Under present knowledge, and purely as a tentative estimate, the number of cases of auditory disability among the wounded returned to this country may be placed at a minimum of four and seven-tenths per cent., exclusive of psychopathic cases.

It is evident, therefore, that the teaching of speech-reading may be variously applied to meet the demands of individuals, and this fact is comprehensively recognized in the plans already made by the Department for Reconstruction of the Defects in Hearing and in Speech of the Surgeon General's Office in Washington.

The term "war deafness" has a wider and a deeper meaning in this colossal and demoniac war than in any war which has preceded it, for not only are there greater numbers of men engaged in the actual contact of strife, but new and hitherto unconceived factors have been brought into the struggle, and earth and air and water have been invaded in the effort to maim and to destroy the most delicate and the most costly mechanism with which man seeks to employ and to perpetuate his intelligent and rightful existence.

The mad autoeratic rush for breech-loading small arms, which signalized the defeat of the Austrians and South Germans by the Prussians at Sadowa, has since been gigantically paralleled by the investigations instituted into the production of high explosives, with reference to their application to military use as well as for their needed service to commercial and constructive ends.

Nowhere was this study more carefully and more ardently pursued than in the cubicles of the chemical departments of the manufacturing establishments which ministered to the expansion of German overseas trade, stimulated by that virus out of Brandenburg, which, within three months after the capitulation of Vienna, in 1866, had set the Prussian lieutenants and non-commissioned officers at work drilling the defeated and sulky South Germans in the vigorous exercise of the goose-step and the handling of the needle-gun. As the drilling and the hardening process of heartless and calculative discipline progressed, to the extinction of human individuality and the production of a coercible mass, the production of chemical by-products to be stored for misapplication went on, the dye industry of Germany assumed gigantic proportions, and beneath the shimmering camouflage of dainty device and witching color lurked and labored the subverted servants of the Prussian State.

In studying the question of war deafness as concerns both its causation and the remedial and compensatory measures to be employed, it

* Volta Bureau, Reprint No. 241.

† Section of Otology, London, February, 1917. N. J. Marriage. Pres. L'Organe de l'Audition pendant la guerre. E. J. Moure. P. Pietra. *American Journal Medical Sciences*. American Laryngological, Rhinological and Otological Society, August 1918.

is important to recognize the fact that in all men entering military service there is a certain proportion already, previously, the subject of some form of aural malady, most commonly a thickening process in the mucous membrane, with consequent decrease in mobility of the sound-transmitting apparatus of the middle ear, or else destructive changes incident to such suppuration as often accompanies the exanthemata of childhood, especially scarlet fever.

In many instances these conditions affect the hearing only moderately, and the candidate for military service passes the customary whispered-word test without detection of a disability, but the local condition is one, in both these classes of cases, which renders the subject more liable to aural injury or disease than would otherwise be the case.

The immobilization of the sound transmitting apparatus as the result of intratympanic thickening and adhesions and of limited ankylosis of the ossicular chain impairs its elastic protective value to the labyrinth, in the event of sudden aerial concussion, and at the same time renders it more liable to a solution of continuity of its own structure, while in the case of the cicatricial substitutes for the original vibrating membrane their ready rupture under concussion opens the way for exposure of the tympanic cavity to the recrudescence of a suppurative process.

The present system of trench warfare, with its incident exposure to wet and to cold, favors the recurrence of catarrhal and suppurative processes in the middle ears, and the concussive effect of exploding bombs and shells sometimes ruptures the thin-scar tissue, which has served to close a perforation in the drum-head, incident to suppurative disease in childhood. An incident of this sort was presented in a captain of artillery of the Canadian contingent, who suffered the loss of hearing of the left ear at Vimy Ridge in consequence of a close shell explosion, there being no sensation of pain, no dizziness or loss of consciousness, but only a sharp, metallic sound, lasting for a couple of days, and later a thin bloody discharge. As a child he had suppurative disease of both middle ears with perforation of both drum heads. The suppuration had subsequently ceased and the perforations became closed by the usual thin-scar tissue, composed of the outer dermoid and inner mucous coats, the firm

interlay of fibrous tissue being never reproduced. On examination I found a large oval perforation, including almost the whole of the posterior half of the drum-head, with a few remnants of scar tissue; the thin tissue had ruptured easily and painlessly, apparently not as the result of the percussive effect of the shell explosion, because the edges of the perforation and, consequently, the scar tissue was in contact with the inner wall of the middle ear cavity, but by the subsequent successive effect of the shell explosion. Under stimulation of new cicatricial growth the injury was repaired and the hearing restored. Marriage makes mention of the possibility of a return movement of the wind waves, which may be termed the successive effect of the shell explosion, and which is exemplified on a larger scale in cases of major injury, one example being that of a soldier standing at the entrance of a dugout ten feet square facing a dump which was suddenly exploded by an enemy shell, the soldier being blown violently against the rear wall of the dugout and then sucked back to the entrance with a fracture of an arm and a leg but otherwise uninjured.

Where rupture of the intact drum-head occurs, this is a matter of more violence exerted either upon the drum-head itself by aerial concussion or by shock communicated through the bones of the head from a violent impact, of which a blow upon the head with rupture of the drum-head of the opposite side, the familiar *contre coup*, is an example.

If the drum-head remains intact under considerable aerial pressure, its excessive excursion, transmitted through the chain of bones to the labyrinth, is liable to exert disruptive effects in that delicate structure, and permanent loss of hearing with more or less protracted vertigo and instability may result. If the drum-head ruptures, the labyrinth more commonly remains intact, and the rupture of the drum-head often follows the line of the attached hammer bone in an irregular tear, the irregular edges of which, glued together by the clotting of the resultant bleeding, speedily heals. In deference to this fact the more recent orders in reference to bleeding from the ears from gun fire or from bomb or shell explosion, incident to fighting at the front, results in the sending of these cases to the rear with the ears stopped with absorbent

cotton for examination and treatment under hospital conditions. In some cases instead of rupture of the drum-head there is hemorrhage into the middle ear or into the tissues of the drum-head itself, these phenomena being analogous to those which are sometimes found in aviators under conditions of rapid changes in altitude.

Taupiquet reports a large number of cases of injury from proximate shell explosions, but the number of instances of implication of the internal ear was small. Of 164 cases in one group, for instance, only 26 were instances of concussion of the labyrinth with or without lesion of the middle ear. The cases of injury to the middle ear without labyrinthine complication the author divides into three classes: those in which a purulent otitis media is the immediate sequence of the injury, with a destruction so extensive as to obviate the possibility of differentiation in degree; those in which there was evident a fresh perforation or extensive rupture of the drum-head, with free bleeding, tendency to coaptation of the irregular edges of the ruptures, and spontaneous healing without middle-ear infection; in cases of infection, however, this evidenced itself usually within the first two or three days. Of the 24 cases of this class 18 were infected. In the third class of cases, 32 in number, the lesion, evidenced on objective examination, was not a perforation, but a condition, similar to that sometimes found in aviators, of varying degrees of middle-ear hemorrhage, with occasional blood blisters, usually in the upper portion of the drum-head, where the blood vessels are more numerous and larger. These hemorrhagic lesions gradually disappeared and within a few days the drum-head was again normal, unless the strain and injury to the implicated tissue had been sufficient to cause sloughing and perforation. This secondary result occurred in 20 of the 32 cases in this class, the time of its appearance being from three or four days to a fortnight after the injury, the appearance of the perforation, circular or lenticular in shape and with rounded edges, differentiating it from the primary rupture or tear across the drum-head.

Raujard in the study of the varied results of auditory implication from shell fire differentiates between the organic and neuropathic cases without reference to middle-ear partici-

pation, regarding as organic those cases in which the ultimate acoustic vibratory apparatus, the organ of Corti, is really injured and as neuropathic those in which the auditory function is merely inhibited. In the organic form there is, either with or without middle-ear disease, evidence of labyrinth concussion or auditory neuritis, while the true neuropathic deafness is usually accompanied by mutism, is bilateral and complete for all sounds, and is not accompanied by evidences of vestibular disturbance; but since these symptoms may occur in some cases of organic deafness the differential diagnosis cannot always be immediately made, and the elements of time and the effects of psychotherapy and of re-education must come into consideration. In this connection the observations of Lannois and of Chavaune are of interest, who reported in the *Lyon Méd.* of February, 1916, the examination of 1000 soldiers, in 645 apparently total, or nearly total, deafness dated from an aerial concussion, without direct traumatism, all but 2 per cent. recovered, and these were left permanently deaf in both ears.

Wilson in reporting on the effect of high explosives on the ear reports that 200 patients exhibiting nerve symptoms were examined by him at periods varying from within 24 hours to one week after the injury, and of this number 50 complained of deafness in varying degree. Seventeen of the 50 cases gave evidence of injury to the internal ear as the result of the explosion. In the remainder the deafness in many instances had been merely temporary and there had been no disturbance of equilibrium in the cases of persistent impairment of hearing. This was found to be due in some to extralabyrinthine causes, the result of an old middle-ear suppuration or an occlusion of the external canal. Of the 17 cases, 6 had definite middle-ear trouble before the concussion; of the remaining 11, with no previous history of ear trouble, 6 had evidences of a recent perforation of the drum-head, and 12 complained of vertigo and gave demonstrable signs of disturbance of equilibration. In regard to the character of the injury in these cases and the treatment to be employed, the author concurs in the general opinion deduced from the existing imperative opportunity for observation, and emphasizes the importance of complete rest and recumbency for a period of

at least ten days after the injury, and that more immediate removal to a base hospital is liable to retard recovery by the injurious effects incident to transportation.

Marriage divides cases of concussion deafness into two classes: those the result of continued explosion of guns firing day after day and those consequent upon the bursting of a shell filled with high explosive in the immediate vicinity of the patient; the former belong usually in the class of results similar to those observed in foundrymen, machinists, boilermakers, and civilians engaged in corresponding occupations, and there is usually persistent deafness in a moderate degree if the soldiers have been long exposed. The deafness due to shell explosion is generally very extreme for a short time and is sometimes accompanied by unconsciousness. In one instance the author saw a shell burst just behind a lieutenant without wounding him, but rendering him completely unconscious for an hour. When he recovered consciousness he noted marked deafness in both ears and intense headache, but no subjective noises and no vertigo, nor was there, either at the time or later, hemorrhage or discharge from the ears. Four days later he heard the spoken voice two feet away from each ear, but high tones, as represented by a loud-ticking watch, of three and a half or four feet normal distance not at all; with the tuning-fork both air and bone conduction were much subnormal, the former, however, being better than the latter; both drum-heads were practically normal; 18 days after the explosion the hearing had become normal.

The treatment adopted by the author in these cases is rest in bed, bromides in the early stages, and later strychnin. In the matter of prognosis, time is the best consultant; if marked improvement has not been made within six to eight weeks the prognosis is bad, and even when the hearing returns subjective noises often persist. In default of an opportunity for postmortem examination, it may be inferred that the seat of the concussion injury is chiefly peripheral, as in the cases under observation. The deafness was rarely associated with rupture of the drum-head, which is in accordance with the generally accepted view that rupture of the drum-head lessens the concussion effect in the middle-ear: in very severe

concussions there is the possibility of concomitant central injury, such as hemorrhage into the brain substance. Psychological deafness as the result of shell shock is usually binaural and occurs usually in cases in which the shock has been especially severe, as, for instance, being buried by a shell without visible evidence of injury. The deafness is usually absolute, there being no hearing either by air or bone conduction, and it is usually accompanied by other nervous signs and symptoms, loss of voice, narrowing of the field of vision, tremors, irregular paralyses, and areas of anesthesia; spontaneous nystagmus is absent.

Marriage agrees with Milligan and Westmacott that in these cases there is a temporary suspension of neuron impulses from the higher cortical cells of the central nervous system to the periphery, their view being that the hiatus or synapse interfering with the flow of nervous stimuli is a central and not a peripheral one, for the reason that in so many of the cases of sudden blindness and sudden deafness no trace of any organic lesion, peripherally, was to be found, and, moreover, the rapid recovery of a large proportion of the patients was a strong argument in favor of the supposition that none had occurred.

Mr. A. Cheate is quoted as reporting two confirmatory cases, one that of a private, who during a bombardment suddenly became unconscious without any definite assignable cause, and so remained for two days, and on recovering consciousness was found to be completely binaurally deaf, without vertigo and without objective evidence of an aural lesion, but for the period mentioned he could not hear the loudest shouting or even his own voice. The vestibular reaction to cold was normal.

The second case was that of a Belgian soldier blown from his bicycle in the retreat from Antwerp and completely deaf in both ears, aphoric, and paralyzed in his left arm and leg from that time up to July, 1916; in this case rapid recovery ensued upon electrical applications, previous forms of treatment, including hypnosis, having failed. The difficulty of distinguishing this form of deafness from malingering is often great, but can generally be accomplished by a thorough examination of the malingerer, who is usually sullen and defiant and fully conscious, being at some time during the tests revealed in his true character, while

the patient with psychical deafness has the signs and symptoms of a nervous breakdown. Among the experiences of other observers the author reports some of especial interest. Two, for instance, which under different causative conditions exhibited similar results. One seen by Mr. S. Hastings was wounded on the right cheek by a bomb; when examined 18 days later the manubrial vessels were injected and the tympanic cavity evidently filled with blood; the Politzer acoumeter was heard at a distance of two inches; the Rinne test was negative and the bone conduction normal. Six days later bubbles were seen in the hemorrhagic contents of the tympanum and the hearing materially improved, while at the end of a fortnight later the fluid in the tympanum had disappeared, the drum-head was somewhat retracted, and the hearing for the acoumeter was three feet.

Mr. A. Cheatle also reports a case of hemorrhage into the middle-ear due to a parachute descent, the airman, 21 years of age, having descended 13,000 feet in four minutes. The only ill effects of this rapid change of air pressure were impairment of hearing, a feeling of fulness in the left ear, and a sensation of crackling on yawning. The left middle ear was found to be filled with blood, with an intact drum-head; the hearing was but slightly decreased. Nothing was done in the way of treatment, and at the end of a month the blood had disappeared and the hearing became normal.

The majority of the cases of ruptures of the drum-head or its representative scar tissue are the results of proximate explosions, and come therefore mainly from the front as a consequence of exposure to shell fire and to the variety of bombs, hand, rifle, and trench mortar used in attack and defense at immediate contact, while in actual bodily conflict injuries to the head are frequently accompanied by ruptures of the middle-ear sound-transmitting apparatus and dislocations of its integral parts.

Another and very different cause of deafness in warfare, and one demanding protracted consideration, is that which comes from long-continued exposure to the sound and aerial concussion of heavy gun fire. The subject of impairment of hearing as the result of prolonged exposure to loud noise has found its more intimate support in physiological experi-

mentation only within a few years, and that by a series of investigations made by individual observers, but often in collaborative relationship, their purpose being the exact determination of the effects produced in the acoustic labyrinth as the result of subjection of animals to the continued influx of loud noises of different kinds, the consensus of opinion being that the injury to the acoustic labyrinth, with subsequent degeneration of the affected portion and the causation of a permanent impairment of function, is the result of the continued impact of the sound waves conveyed through the medium of the air and not through the body. These patients often hear the human voice better in the presence of a noise, but in quiet surroundings would be mainly dependent upon speech-reading for their appreciation of conversation.

IV.*

IN view of the diversity of degrees of impairment of hearing to be expected in the war deaf and the importance of estimating, and of compensating, for this particular disability when it is but one of other concomitant injuries, it is evident that the instruction in speech-reading should be under the direction and control, firstly, of the General Medical Staff; secondly, of the medical staff of the hospital, or other institutions, in which the teaching is applied; but it is also evident that this teaching, in order to achieve its highest physiological, as well as its most immediate practical value, should stand in a class by itself like the vocational training! not a part of the hospital treatment of the disorder from which the patient is recovering, but the first step toward the resumption of the individual place in civil life.

A review of the reconstruction and rehabilitation plans of the medical departments of our Allies emphasizes the importance of the distinction between the hospital treatment proper and the educative rehabilitation treatment, which, while it may begin in the hospital ward, is distinctly a pedagogic process and should be mentally differentiated as such, since, when so regarded, it becomes a stimulus to the effort to get into the competitive activities of existence again.

For these reasons, as well as for advantages

* Volta Bureau, Reprint No. 245.

in administration which are self-suggestive, the teachers of speech-reading for the war deaf, whether men or women, whether working in hospitals or in established speech-reading schools, should not be classed with nurses or be under the direction of nursing superintendents, except in so far as the observance of hospital rules or the welfare of the individual patient is concerned, the teaching of speech-reading being essentially of educative purpose, capable of initiation in individuals still under hospital treatment but to be regarded as the helping hand which is to lead onward and outward and to continue its guidance in civil life so long as it may be needed.

The appreciation among the adult community deaf of the value of speech-reading is rapidly growing in this country, and the establishment and rapid enlargement of private speech-reading schools is an evidence of this; there is, moreover, a growing understanding of the isolation which deafness entails and of the peculiar mental depression which not infrequently accompanies it. To combat this, there are being formed clubs and associations not merely for practice in speech-reading, but for mutual association in good works and in the installation of that spirit which recognizes in a handicap a possible helpful stimulus rather than a mere hindrance.

The Speech-Readers' Guild in Boston is a primal example of this and one in which our war deaf, after their discharge from hospital, will always find a sympathetic, an appreciative, and a hearty welcome, since it will be one of the privileges of this and similar private institutions in other parts of the country thus to supplement and continue the rehabilitation work begun under government control.

That some such opportunity for supplementary training in speech-reading should be one of the means by which those similarly afflicted in civil life can express their gratitude to their defenders who have, with much of the same sort of courage and purpose as that which took them abroad, again come among us to take up the activities which they have helped to conserve, but under, to them, greatly altered and more difficult conditions; it is not only for the practice in speech-reading that such an opportunity for our war deaf is advisable, but also for the purpose of continuing that urge to friendly converse, that kindly human touch

with one's fellows which the deaf, enclosed in a vaguely silent world of their own by a transparent invisible wall, so greatly need.

To the extremely deaf, the victims of auditory concussion, as distinguished from the so-called cases of "shell shock," a vague term of modern origin applied to a series of manifestations of other than merely commotional origin and coming properly under the domain of the neuropsychiatrist, who do not hear the sound of the individual voice, or in part only, or considerably altered in portions of its scale, one of the remnant results in many cases of injury to the labyrinth, the speech of the patient either conforms partially to his remnant of hearing or becomes an entirely mechanical process, semi-articulate, unnaturally harsh, and discordant or lowered to a sibillant simulation of a voice, and in all these guises a deterrent to those who would endeavor to communicate with him.

Cases of this kind require not only long and persistent speech-reading and speech-producing training, but also subsequent opportunities for an occasional drill in articulation, because the effort to produce adequate speech, unaided by the hearing of one's own voice, is even more productive of fatigue and discouragement than the effort to understand the spoken word through the medium of sight alone.

As a matter of practical experience it has been found that among the most successful teachers of speech-reading are those who have been obliged to become dependent upon this means of understanding the spoken voice, because of their own impairment of hearing, and this success seems to have a two-fold reason, the first being the sympathetic appreciation, born of a similar experience, and the intimate understanding of the difficulties in the way of the pupil; the second being the customarily more careful formulation of the speech equivalents upon the part of the considerably deaf than upon the part of the considerably hearing teacher.

To all teachers of speech-reading this matter of clear, flexible, defined and at the same time unforced articulation is a matter of great importance, and it may well be included as a part of the curriculum in the normal schools for the instruction of teachers for the adult deaf. In teaching the adult deaf the equable, well-articulated speech is especially important

for several reasons, these pupils have long been accustomed to watch the face of the speaker and, if the deafness has been slowly progressive, have increasingly tried to construe the movements of the lips; a forced movement is to them, therefore, suggestive rather of distortion than of emphasis, and is correspondingly confusing. To adults having already established habits of thought of their own, concentration of observation is often fatiguing, and the more even the instruction in its repetition of form the more easily is it acquired, and, still further, the mentality is less plastic to an initial impression, in many cases, in the adult than in the youth.

In this connection the statement of Dr. Frederick H. Sexton, Vocational Officer in the Quebec and Maritime Provinces, Military Hospital Commission, may be had in mind as bearing upon the coming work of the American teachers of speech-reading to the deaf.

"These men are not the same men who sailed away on the transports to France and Belgium. . . . The pitiless horror of 'No Man's Land' and the terrific nervous strain of the modern artillery bombardment has marked their minds, one and all. In the trenches the men are said invariably to show the lines of strain upon their faces and to give the appearance of being five to ten years older than they actually are. Even the long period of loving care in hospitals in England has not erased all the evidences of mental stress and strain. Whether or not there is any general permanent impairment or modification cannot yet be decided definitely.

"There is no doubt, however, that the average returned soldier is mentally sluggish and sub-normal. He does not react as truly and as quickly to ordinary stimuli as he did before enlistment. He is more erratic and cannot concentrate upon any one task or pleasure for long. He cannot fit into the humdrum life of productive industry with its demand for continuous effort throughout the long working day without a severe process of adjustment. These are the effects of military organization itself, as well as the particular results of battle."

It is very evident to the informed mind that beyond the achievements of medicine and surgery, the salvaging of orthopedics and the ministrations of nursing care, the vocational rehabilitation of the sick and wounded who re-

turn to this country will need the best teaching quality available in special lines, and this latter form of help will need to be continued, in many instances, beyond the period when the patient shall have emerged from hospital environment and begun to take his place in ordinary life.

In reference to the teaching of speech-reading, we are fortunate in having well-established schools and an increasing number of competent teachers, exhibiting willingness, as well as skill and understanding. Carefully selected graduates of normal schools of speech reading have been listed in the Surgeon General's office and either independently or as members of the units of the Reconstruction Service of the Industrial Union for the Deaf, distributed in large population centers throughout the United States, are eagerly ready for service, as their numerous letters of enquiry bear evidence, and prove that it is upon the American women, teachers of speech-reading to the deaf, that we can rely not only for that particular form of instruction of which they are capable, but for the infusion of new courage, the opening of the vision of uplift and of achievement, to the war deaf who are coming home.

Medical Progress

REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

FIVE GENERATIONS OF ANGIONEUROTIC EDEMA.¹

QUINCKE was the first to describe this affection, in 1882, under the name, "acute circumscribed edema of the skin." He considered it a vascular neurosis and attempted to separate it clinically from all other forms of local edema as a distinct disease. These observations were, however, only a sequel to Milton's work in 1876 on "Giant Urticaria," a new species of affection differing from the several forms of urticaria previously described. The name angioneurotic edema was introduced by Strübing in 1885, and has been the one most commonly employed to designate this affection since that time, although the simpler term "acute circumscribed edema" is preferred by many, as it is held that there is no final proof of its neurotic origin, and it is not confined to the skin. The disease

is not uncommon, Cassirer, in 1901, being able to collect from the literature 160 cases, and many more have appeared since. As is well known, the disease is characterized by acute massive swellings of the skin, and sometimes of the mucous membranes or of internal organs, which develop and disappear with great rapidity, leaving no trace behind them. It has a marked tendency to recur, and is often associated with other neuroses, and it seems to be more or less related to urticaria and other skin lesions exhibiting local vascular disturbances. It is usually acute and sporadic, but a familial type has been observed in which it seems to be distinctly hereditary and has appeared in several or many members of a family through two or more successive generations. The existence of hereditary angioneurotic edema in this country was first pointed out by Osler. He published the history of a family in which it was present through five generations, and in which 22 members had suffered from repeated attacks of the disease. Later it appeared in two members of the sixth generation.

The cases reported by the writers occurred in a family in which the frequent occurrence of local swellings in various parts of the body is a fact of common knowledge to their friends and neighbors, and a matter of concern to the parents of children who may be affected. Many members have suffered severely through longer or shorter lives, and not a few have finally died from attacks in vital organs. The patient seen was a man nearly 80 years of age, always subject to severe attacks of local edema, sometimes of great extent, developing quickly, disappearing rapidly, and affecting at different times practically all parts of the surface of the body. The attacks have become less frequent in later years. He was never able to associate the attacks with any cause, either dietary, traumatic, or otherwise. The family history began with the father of this patient, in whom the attacks began as a young man, and were eventually fatal after a lapse of about twenty years, through involvement of the throat. This man was the father of ten children, three sons and seven daughters. Though the mother of these children was entirely free from their father's trouble, the malady was transmitted to all of them except one son, and seven of them are said to have died of the disease. Two of the affected nine of the second generation died without descendants; to the remaining seven

there were born twenty-nine children, and twelve of these twenty-nine had angioneurotic edema. In only one of the seven groups of children born to these seven affected parents and making up the third generation, were all the children free from the disease. In the fourth generation there are seven known groups of children, with a total of eighteen individuals. Nine of these children are descended from three unaffected parents and are free from the disease; nine are descended from four affected parents and five have the disease; only one of the affected parents gave issue to children who have thus far entirely escaped. The fifth generation contains only six known members up to the present; three are the daughters of an unaffected mother and one of them has the disease—the only case so far observed in the fifth generation.

In this family, from the first to the fifth generation, definite histories have been obtained of sixty-four individuals. Among them there have been twenty-eight cases of angioneurotic edema, and fifteen deaths from an acute form of the disease. That is, of the sixty-three known descendants of the first one affected, 27, or 42.9 per cent., have inherited the disease, and 51.5 of those who have had the disease have died of it. The division has been about equal between males and females.

TEN YEARS' EXPERIENCE OF RINGWORM IN PUBLIC ELEMENTARY SCHOOLS.

John Priestly,² Senior School Medical Inspector for Staffordshire, states that after ten years' experience and a close study of ringworm in schools, his impression is that the anxiety that was formerly caused by this condition was unjustified. In those days very little was known of the numerous cases that pursued a brief course without leaving a trace behind. Priestley's experience is based on a country area containing over 80,000 school children scattered over rural or small manufacturing districts. He emphasizes the connection between ringworm and impetigo contagiosa, both occurring at about the same age, being equally infectious, endemic in the country, and appearing as single cases or in little groups. These epidemics in both cases cease, as a rule, as suddenly as they appear, so that it is often a question whether their disappearance is due to the preventive measures taken. Ringworm on the

hairless skin is, as is well known, as easily and quickly cured as impetigo. To illustrate the percentage of cases of ringworm discoverable on the day of inspection during the four years 1909-1912, about five children out of every thousand examined were found on the day of inspection to have ringworm of the scalp. It cannot therefore be said that the head ringworm is a very common trouble in school life. The numbers found on the day of inspection are equal to the number of cases of tuberculosis of all kinds similarly found, and are only one-fiftieth of the cases of pediculosis capitis. The old teaching that scalp ringworm had no tendency to spontaneous recovery is disproved by experience. From the writer's statistics it seems clear that there was more scalp ringworm among the boys than among the girls, after allowance is made for the fact that it is much easier to escape discovery in the latter owing to their longer hair.

The grade of infectiousness seems to be low, and very close contact seems necessary for its spread. It was found not so much in children in the same classes, as in those living in the same street or house. The degree of infectiousness in ringworm was estimated to be much less than that of pediculosis. Roughly speaking, ringworm was always to be found in about one-half of the schools, although in a large majority only as single cases, or in groups of two or three. Epidemics were comparatively rare.

As regards treatment, Priestley considers that it has entered on a new phase since the x-rays were used on the principle that this offers a convenient mode of epilation, which is necessary in order to get at the mycelium and spores. We have now practically the means of completely controlling the individual case, but the drawback is the time required, about two months; and, besides, there is temporary baldness, and, theoretically, the fear of damage to the brain cells. It is also a somewhat costly method. It must also be remembered that ringworm is not a dangerous affection in itself, and that it probably invariably disappears before puberty. To these facts may be added its low grade of infectiousness,—so low, in fact, that with certain simple precautions we need not exclude children from school,—and the knowledge that it is so seldom epidemic. Hence the question legitimately arises whether it is necessary under these circumstances to trouble about the x-rays in all cases,—or

whether they may be reserved for the five or ten per cent. of excessively protracted cases. It was found that of 778 cases casually treated (that is, at home, either by physician's prescription or popular or domestic remedies), the average duration was nine months, the minimum within one month, the maximum fifty-eight months, or just within five years. Nearly half the cases were over in six months. The duration of the cases seemed to have very little direct relation to the vigor or completeness of the treatment. The age of the child at the outset did not appear to influence duration in any marked degree, as there were long and short cases at all ages.

With regard to administrative measures, head teachers at once notify of suspected cases, and the medical inspector proceeds to verify at the next regular inspection, the teacher meanwhile treating the case as if it were ringworm, and suggesting that the parents consult a physician. The hair is to be cut short and some simple application, like carbolized oil, used to prevent the hair from flying about. If these precautions are refused or neglected, the teacher is expected to forbid the child's attendance. The caps are of good blue cotton and shaped like polo caps; the bonnets pink or gray and shaped like sunbonnets, and are boiled and washed twice a week. It is extremely seldom that it has been found necessary to close a school.

This method has been in vogue in these schools since 1911, and there has been no change for the worse in the number of cases occurring. Priestley declares that if we were not dealing with an essentially benign disease, the precautions, as well as the casual treatment, that is, all that nine-tenths of the cases ever get, would be of little value.

TREATMENT OF SYPHILIS AT CAMP TRAVIS, TEXAS.

With the permission of the Surgeon-General, Captain Guy offers an interesting report on this subject in the September number of the *Journal of Cutaneous Diseases*, including Syphilis. With regard to prophylaxis, he states that a good deal more than ninety-nine per cent. of the cases of syphilis were brought into the army through the draft. The few cases contracted since entering the service are of interest mainly because they are preventable. The abolition of alcohol, the institution of clean

sports and entertainment, and personal talks to the soldiers explaining the dangers of venereal diseases have done much to help. The man who has disregarded warnings is required to report at once to a prophylactic station, where a solution of one of the silver salts is injected into the urethra and held for five minutes, and then a calomel ointment, 30%, is vigorously rubbed in externally. This is said to be a sufficient preventive in 90% of the cases. The date and hour of the exposure and of the prophylactic treatment is kept in every case, there are frequent inspections and those found to have been infected without taking prophylaxis, are courtmartialled. There is a record of about ten thousand prophylactic treatments up to date.

During a period of seven months there was a record of 105 cases of venereal disease acquired after service was entered, of which 57 did not have prophylactic treatment. It is assumed that an early diagnosis and prompt treatment have cured many cases of syphilis before there was a generalized infection. All cases of venereal ulcer were referred for a dark field examination before any treatment was applied, and two negative dark field examinations were required before any venereal lesion was pronounced non-syphilitic. Very few so-called tertiary or congenital cases were seen. Wassermann tests were made before any treatment was given and repeated before each course of treatment. The antisheep method is used in the laboratory, the antigen being a cholesterinized beef heart extract. Of 1500 reactions made up to date, positive results have been attained in about 20% of the cases, the large proportion of negative results being accounted for by the fact that a routine Wassermann test was required of certain groups of men. Each patient has a special syphilitic register, which goes with him if he is transferred, in order to follow up the treatment. Each patient has a thorough examination, including one by a dentist, before the treatment is begun, and particular attention is paid to the kidneys and heart.

The routine treatment consisted of rather intensive courses of arsphenamin or its equivalent, with mercury, the two drugs being used in conjunction. An arsphenamin injection and mercury were given each week for ten weeks, after which there was a complete cessation of treatment for five weeks. After this there was a repetition of the physical examination and

of the Wassermann test, and another course of treatment was begun, and so on until the Wassermann reaction becomes negative and remains so. The writer, while not asserting that any of the secondary cases are cured, feels that it is probable that most of the primary cases have been cured. The arsenobenzol brand of arsphenamin has been the arsenical preparation used, and patients with infectious lesions were treated in the hospital. Tobacco was forbidden, and oral cleanliness required. Calomel ointment with massage was applied to local lesions once a day, followed by powdered calomel. When the patients become non-infectious, they are returned to duty, their syphilitic register being forwarded at the same time. When returned to duty the treatment is continued, the mercury is given at the regimental infirmary and the arsphenamin at the base hospital weekly, where the patients are sent at 9 A.M. on certain fixed days. Also the salicylate of mercury is given intramuscularly as a part of the routine treatment both in the hospital and after the return to duty.

The technic that has been adopted is used by all the regimental surgeons and the injections are given in the evening to avoid loss of time. At first $\frac{1}{2}$ to $\frac{3}{4}$ of a grain are injected and this dose is increased at the rate of $\frac{1}{4}$ grain weekly until 2 or $2\frac{1}{2}$ grains are given at each dose, provided that there are no contraindications. More intensive treatment is employed in cases in which the diagnosis is made by the dark field method, because we may then reasonably expect a speedy cure provided the individual is strong enough to stand energetic treatment. It is agreed that this treatment should be as intensive as is consistent with safety.

As to results, while it is too soon to publish conclusions, a positive Wassermann reaction has never been obtained in any of these cases. The routine treatment in primary cases is to give 0.1 gm. of arsphenamin for each 30 pounds of body weight, repeated twice the first week, followed by the usual weekly arsphenamin and mercury for ten weeks; then a rest of five weeks, after which a Wassermann test is made and the course repeated. After this the case is kept under observation, and Wassermann tests made at intervals. In so-called tertiary and certain late secondary lesions, the iodide of potash to saturation is given with the routine treatment. About 400 cases of syphilis

have been treated, and about 350 injections of arsphenamin and the same number of treatments with mercury are given weekly.

DERMATOLOGICAL STATISTICS FOR 1916.

S. Pollitzer³ has published the statistics for the American Dermatological Association for the year 1916, no previous report having been issued since 1911. There were 31 returns for 17 cities, which yielded a total of 58,387 cases. Very little change from the normal averages was shown in the common skin affections. Progress in etiology and classification has been shown by the fact that whereas forty years ago one-third of all cases seen by members of the Association were called eczema, this year only one-sixth were reported with this name. Pollitzer remarks that the sifting process has been continuous throughout the four decades of the annual reports, and that it seems probable that we shall continue for some years to separate from the group of eczema more and more special forms of so-called eczema until it is reduced to its lowest terms. Some of the forms of so-called eczema that have been reported by some, have not yet been recognized by all, as in the case of chronic circumscribed eczema of the Vienna school, now known as lichen simplex, which appears in the list for the first time, although it is obvious that many still include the affection under eczema. Scabies shows a diminution, continuing the declining curve of the report published five years ago. Scabies was very prevalent during the Civil War, then declined rapidly soon after, to rise again until it reached 6% in the late eighties; after which it declined to less than half that figure in 1895, and after remaining stationary until 1901, suddenly and rapidly rose to nearly 10% of all cases seen in 1905; and then again dropped to about 5% in 1911. For 1916 the ratio was only 3.2%. Pollitzer truly says that it is highly probable that during the next year or two the assembling of large bodies of recruits in camps and the shifting of large masses of men will result in a great increase in this disease. This was the experience during the Civil War. With regard to the cancerous diseases, they form $2\frac{1}{3}\%$ of all the cases reported. Cancer has been steadily increasing in these reports, and that is in line with the commonly accepted view that cancer in general is on the increase. Per contra tuberculous diseases, al-

though the so-called tuberculides have been included in this class, fall below the general average of these diseases for the first time. It is safe to conclude that tuberculous skin diseases are not increasing in this country. The second place in the statistical table is held by syphilis, over 7,500 cases being reported, or 13% of all cases seen. This is the highest in all the records, and is nearly 3% above the general average for this disease. It is not probable, however, that this shows a real increase in the number of cases of the disease, as the treatment of asymptomatic cases of the late stage, and of those with visceral lesions, has undoubtedly swelled the total of syphilis cases. The report shows that 739 cases were seen during the primary stage ($11\frac{1}{2}\%$ of all cases), 2,176 during the florid period ($31\frac{1}{2}\%$), and 4,674 (8%) during the late period.

A LEPER COLONY ON THE BORDERS OF ABYSSINIA.⁴

Innes reports that this is the only leper colony in the northern part of Africa, although the disease is common about Omdurman, and sporadic cases are spread all over the country. It is of great frequency in Abyssinia, especially in the capital of that country. The colony is situated on a small hill about ten miles by the main road from Abyssinia. The total number of inmates of the colony was 26, 9 men and 17 women. The average duration of their stay was 13 years, with seven cases over 20 years. In four cases the husband and wife have both been lepers, always one being affected a long time before the other; but there is no record of any child having become a leper, although all the women had children before entering the colony. It is noteworthy, however, that almost all the children died young, although it was impossible to determine the causes of these deaths. As disproving the assertion that lepers are necessarily sterile, a woman not yet more than thirty years of age, who had been in the colony for seven years and had been leprous for ten years, had been twice delivered of children while in the colony. Her leprosy had been of the anesthetic type, although nodules were beginning to develop on the face. With regard to symptoms, all have a certain degree of bone pain, but nine of them complained that it was very severe and prevented sleep. In all there was some degree of leucoderma, except in three purely nodular cases, and in nine the non-pigmented areas

were very extensive. There were many ulcers under the toes and mutilations of the feet, and in almost all of the anesthetic cases there was a loss of fingers. The patient usually comes to the colony willingly, since the people about him are intolerant of his helplessness. There is no obligation for the patient to stay, and they often escape, but usually return as there is no place where they are so well off. It is asserted that "dermatol" has proved the most popular topical application to their lesions, and they are constantly supplied with it. Some microscopic work was attempted under poor conditions. Hansen's bacillus was found in great numbers in all of the nodular lesions, but none was found in the trophic ulcers. Some experiments with insects, with a view to their being possible carriers, proved negative. The fact that four husbands and wives were infected, one from the other, but that no child of all those born to the inmates of the colony has ever been infected, proves the low grade of infectivity of leprosy. Besides, although the disease is endemic in the Soudan, it never becomes epidemic. A point that differs from the view of most observers is that in this colony there were 17 women to only nine men, whereas it is commonly stated that there are 50% more cases in males than in females. The old fish theory is still strong. Innes states that careful observers told him that there was good reason to suspect that fried fish were a factor in the infection. In certain places the natives eat the dried Nile fish, which is sold in every marketplace within reach of the river; whereas other tribes will not eat it, and these latter are said never to develop leprosy. It is to be remembered, however, that only an extremely small part of the people who do eat it are affected with the disease. The writer exonerates the bed bug from all participation in carrying the disease.

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American Medical Biographies.

BARD, JOHN (1716-1799).*

THIS pioneer New York physician was the first in the United States to take part in a sys-

tematic dissection for the purposes of instruction and he was the first to report a case of extra-uterine pregnancy. His father, Peter Bard, a refugee from France on the revocation of the edict of Nantes, went first to London, and then to Delaware in 1703, on a mercantile venture. This not proving successful, he settled in Burlington, New Jersey, where he was appointed judge of the supreme court and a member of the governor's council, dying at an early age and leaving his widow, a daughter of an English physician named Marmion, with a family of seven children to educate on very slender means. John, her third son, born February 1, 1716, was sent to Philadelphia, where he received the rudiments of a classical education, partly at the hands of a Scotch gentleman, Annan by name, a man of reduced circumstances but an accomplished teacher of Latin and an exponent of polished manners.

At the age of fifteen John was bound apprentice, according to the custom of the day, to Mr Kearsley, an English surgeon of good talents but of an unhappy temper. He treated his pupils with great severity and subjected them to most menial employments, to which John would have scarcely submitted, as he said, were it not for the fear of disappointing his mother and because of his affection for Mrs. Kearsley, who showed him the greatest kindness. For seven tedious years he stayed with the doctor, stealing his hours of study from sleep, after the family had gone to bed and before they got up in the morning.

An early intimacy with Benjamin Franklin, of kindred mind and no unequal fortune, served to brighten Bard's leisure hours and to stimulate his industry. They were members of the same club and they corresponded and kept up their friendship throughout their lives.

Dr. Bard settled in practice first in Philadelphia, where he married a Miss Valteau, a niece of Mrs. Kearsley, like himself a descendant of a refugee and equally destitute of the goods of this world. Of this union was born Samuel Bard, organizer of the first medical college in New York, and a noted writer on midwifery. After practising six or seven years in Philadelphia, Dr. Bard was induced by Franklin to move to New York in the year 1746, to take the place of Dr. Dubois and Dr. Dupie, who had died there of yellow fever. His cheerfulness, conversational ability and

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

taet. coupled with sound professional attainments, soon won for him a large practice among the better classes. Bard read much in the medical literature of the day and also in the English authors, and his retentive memory enabled him to delight his friends with long and appropriate quotations.

Upon the arrival in New York harbor of a Dutch ship in 1759 containing cases of a malignant ship fever, Dr. Bard was employed by the corporation to take proper quarantine measures. Every nurse and attendant in the hospital had the disease. Thus was Bard impelled to draw up a memorial urging the expediency of providing a pest house against similar occurrences, and the result was the purchase of Bedloe's Island and the building upon it, Bard becoming health officer. He was, likewise, appointed surgeon and agent for the sick and wounded seamen of the British navy at New York, retaining the positions until he retired from practice. He was a friend of Dr. Peter Middleton, one of the noted medical men of the time and a founder of the medical department of King's College, and Bard assisted Middleton in the first recorded dissection.

As regards this, David Hosack says (*American Medical and Philosophical Register*, 1812, ii, 228): "As early, however, as 1750, the body of Hermannus Carroll, executed for murder, was dissected in this city by two of the most eminent physicians of that day, Drs. John Bard and Peter Middleton, and the blood vessels injected for the instruction of the youth then engaged in the study of medicine: this was the first essay made in the United States for the purpose of imparting medical knowledge by the dissection of the human body, of which we have any record."

In 1778 Dr. Bard retired from practice and settled on a farm he owned at Hyde Park, on the Hudson, in Dutchess County, but being reduced in fortune by the Revolution, he returned to New York at the peace of 1783 and resumed practice. On the establishment of the Medical Society of the State of New York in 1788, he was unanimously chosen its first president.

Dr. Bard was not a voluminous writer. In a letter to Dr. John Fothergill of London, dated December 25, 1759, he communicated "A Case of an Extra-uterine Foetus," that was read to "A society of physicians in London." March

24, 1760, and published subsequently in "Medical Observations and Inquiries," in 1762. This first case to be reported has an interest to every medical reader. It was a woman of 28 years who went through her second pregnancy with only slight abnormal symptoms, and at the end of nine months had a few labor pains, but delivery did not take place. In spite of the presence of a large right-sided abdominal tumor, she had another healthy child by a normal labor, but five days after delivery pain and fever began, and at the end of nine weeks of treatment by fomentations, fluctuation in the tumor could be determined. Dr. Bard, in the presence of Dr. Huck, an army physician, opened the abdomen by a long incision and delivered a macerated full-time fetus and much pus, the patient then nursing her child and making a good recovery. Several papers on yellow fever from Dr. Bard's pen are to be found in the files of the *American Medical and Philosophical Register*, and after his death there appeared in the same publication (April, 1811, i, 409-421) an essay on the nature and cause of malignant pleurisy that had been delivered before "A weekly society of gentlemen in New York," in January, 1749. Here we have a reference to, probably, the earliest medical society in the country. It was patterned after Dr. Fothergill's London society apparently and, according to Peter Middleton, was in existence twenty-five years later.

In 1795 Dr. Bard, then being in his eightieth year, gave an address before the state medical society, calling attention to the presence of yellow fever in the city, meeting much opposition and some obloquy by so doing. Nevertheless, his advice as to the treatment of this dread disease,—sweating the patient,—proved more successful than other methods. In 1798 he gave up practice and retired to Hyde Park, where he died March 30, 1799, at the age of 83. His charm of conversation, vivacity and cheerfulness never forsook him, and thus he passed to the great beyond admired, respected and beloved.

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WALTER L. BURRAGE, M.D.

Society Report.

JOINT MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION AND THE LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

(Concluded from page 706.)

THE ACTIVITIES OF THE SUBCOMMITTEE OF OTOLARYNGOLOGY, SECTION OF SURGERY OF THE HEAD, SURGEON-GENERAL'S OFFICE.

CHARLES W. RICHARDSON, M.D., CHAIRMAN.

This committee, consisting of Dr. Richardson, Dr. Shurly, and Dr. Mosher, presented to the Surgeon-General the resolution of the societies they represented as to the need of establishing a division of the Medical Corps of the Army and Navy, to assume charge of injuries of the head and air passages and the diseases of the eye, ear, nose and throat, acquired in service, in addition to making special examinations of aviators and the employment of hospitals and their staffs for this purpose.

The Surgeon-General of the Army promptly appointed Major T. C. Lyster as an adviser to the committee, and the Surgeon-General of the Navy appointed Surgeon G. E. Tribble, and these two, together with the original committee, were subsequently appointed by the General Medical Board of the Council of National Defense as a subcommittee on the nose, throat and ear, of the Surgical Specialties.

Of 5468 questionnaires sent, 2014 replied, while 3474 failed to answer.

A request was made to the General Medical Board of the Council of National Defense that the Subsections of Laryngology and Otolaryngology and the Subsection of Ophthalmology should meet in joint session.

A request was made also for the addition of a Brain Surgeon to the Ophthalmologic Section, and an Oral and Plastic Surgeon to the Otolaryngologic Section, thus completing the Division of Surgery of the Head. This request was also promptly approved by the Surgeon General of the Army.

Dr. William H. Wilmer was made chairman of the joint Section of Surgery of the Head. Dr. V. P. Blair and Dr. Bagley were made members of the subcommittees.

The Subcommittee on Otolaryngology was formally approved by the Council of National Defense on August 15, 1917.

The following activities for otolaryngologists have been established:

Suggestions for a one thousand bed hospital for the Surgical Head Section on the Western front abroad were presented to the Surgeon-General and approved. The members of the subsection visited various large cities and addressed otolaryngologists to arouse their enthusiasm and gain recruits to the Army Medical Service; otolaryngologic instruments standardized; requirements for entrance into the Army as to hearing revised; tests for malingerers assembled; tests made to ascertain the value of ear protectors; plans for a special hospital and dispensary building in cantonments for the Section on Surgery of the Head; the activities of the subcommittee outlined and sent to the members of the national societies; the appropriate grade of the assignment of the various candidates in the Medical Reserve Corps was indicated by the members of the committee in the office of the Surgeon-General; an accurate tab on the professional qualifications and character of each candidate for service was had; the assignments in otolaryngology at base hospitals and cantonments; a roster of men to be assigned in otolaryngology in base hospitals abroad (in preparation); a course of lectures at the cantonments by the Chiefs of the Otolaryngologic Staff ordered, the officers designated to deliver the lectures, subjects given for the lectures, and a list of the books for the library prepared.

Major H. W. Loeb of St. Louis was assigned to the office of the Surgeon-General to prepare a War Manual of Otolaryngology.

Major B. R. Shurly resigned, and Major J. H. Bryan was nominated by the Council of the American Laryngological Association to the vacancy. This was approved.

Major Mosher was ordered abroad on an inspection tour with Lieut.-Col. Lyster, and Major Richardson to temporary duty in the Surgeon-General's office.

Exhibits are presented indicating the various subdivisions of the Surgical Service approved by the Surgeon-General. Finally, Colonel Richardson presented a report on the proposed reconstruction of the defects on hearing and speech as a result of casualties in war.

This exhaustive and comprehensive report is accompanied by exhibits in detail.

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ERNEST GREGORY, *Manager*

126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

RED CROSS INSTITUTE FOR THE BLIND.

THE Red Cross Institute for the Blind has been organized at the request of the Surgeon General of the Army to supplement the training to be given at the Military Training School for the Blind. Its purpose is to supply the necessary economic and social supervision of blinded marines, sailors and soldiers, after their discharge from military service. A careful study will be made of the soldier's past life to ascertain his previous occupation, his stability, wages, moral career, social environment, his military or naval record, and the possibilities of his home community.

The occupational possibilities open to the blind will be investigated and new fields discovered in order to help the blind to become self-supporting wage earners. There are processes in factories which would be immediately available to the blind if special devices were arranged for the machines. These processes will be tested, and

classes will be offered at the Military Training School for those who will later enter factories. The institute will assume the double responsibility of placing the man in the industrial world and also of removing him if he proves to be inefficient.

Blind workers may be divided into five classes: those who can work in shops with the seeing, in shops maintained for the blind, in commercial enterprises, in agricultural pursuits, and those who can work only at home. The policy of the Institute will be to assist the man to find work either in his old occupation or in some closely allied trade whenever this is possible. For those who have not mental or physical stability to go into regular factories, special small shops will be established. Men who were attending technical schools or colleges before their enrollment in the Army or Navy will be given an opportunity to continue their studies whenever such a course seems practicable. Embossed books will be provided for all blinded men.

In order to secure the understanding coöperation of the families of the blind and to avert the mistaken sympathy which is an additional handicap to be overcome in the blind man's progress, a cottage for relatives will be built in Baltimore, near the Military Training School. Whenever a relative can be trained to assist the blinded man in carrying on his future trade or profession, instruction will be provided without additional expense. Some arrangement will be made by the Institute to provide tools and materials necessary for reestablishing the blind in their future occupations.

HOME SERVICE AND THE DISABLED SOLDIER.

THE nation will not have expressed its gratitude to the soldiers who have been disabled in her service until it has administered the best of medical and surgical care, granted financial compensation in proportion to the degree of injury, and provided systematic training for renewed industrial life. The Federal Government has recognized its responsibilities in assuming leadership in this work, although the coöperation of other agencies will be of invaluable assistance in fulfilling the country's obligations.

The Home Service section of the Red Cross is particularly well adapted to assisting in carry-

ing out the Government's program for the treatment, training, and placement of men injured, or disabled by disease, in the service of the country. A pamphlet entitled, "Home Service and the Disabled Soldier," written by Curtis E. Lakeman, presents the principles which will be followed in undertaking this work. It describes the treatment and training which will be offered to the disabled soldier, the types of employment he may secure, the just compensation he may expect, and the provision which will be made for his after-care.

Both sympathy and intelligence will be needed in order to carry out the proposed plans effectively. It is detrimental both to the soldier's ultimate happiness and to the nation's industrial and labor resources, to allow the man who is disabled to waste the remainder of his life in dependence upon his family or some charitable institution. It is the purpose of the Red Cross Department of Civilian Relief to ensure the support and encouragement of the man's family in his effort to make the most of his opportunities; to give competent advice throughout the course of his vocational training; to create the right attitude among employers; to assist the men, through competent legal advice to secure the benefits of the War Risk Insurance law; to urge upon disabled men the wisdom and necessity of taking full advantage of the Government's plan for their care and training; to encourage them in the early and critical stages of their vocational training and of their return to employment, when the struggle to overcome mental and physical handicap is most acute; and to mold public opinion so that it will discountenance hero-worship and maintain an attitude which is both sympathetic and constructive.

DISTRIBUTION OF RED CROSS FUNDS.

THE object of the American Red Cross is first and foremost the alleviation of human suffering and although the "Greatest Mother of them All" realizes the enormity of her task in comforting the soldiers and sailors, she does not forget that among the civilian population there are battles to be fought against disease. In order that the funds appropriated for this tremendously important work shall be expended with the utmost care and with a view toward accomplishing the best results, the National Tuberculosis Association has announced the following plan for

distribution during 1919 of the appropriation of \$2,500,000 from the American Red Cross.

1. The National Tuberculosis Association reserves 10% or \$250,000 for the support of the society and for a missionary fund.

2. Without any deductions or commissions each state and general agent under direct contract with the National Tuberculosis Association in 1917 is allowed an amount equal to the gross proceeds from the sale of 1917.

3. The state organizations and those local organizations that were in direct contract with the National Association in 1917 will receive a share in the remainder (approximately (\$450,000) in proportion to the Red Cross members enrolled in their respective territories during the coming Christmas roll call. This ratio of distribution will depend on the proportion of members enrolled in such territory to the total membership in the United States subscribing at the coming roll call.

4. If a state feels that the amount allotted to it is not sufficient for its needs, it may submit a detailed statement of its expenses to the National Association and then if the executive committee approve, such allotment will be increased after payments have been made as under Paragraphs 2 and 3.

5. On or about January 1, 1919, the first appropriation will be made and thereafter quarterly during the year.

6. The right to withhold or modify appropriations not in harmony with the budgets previously presented to the National Association will be exercised by the Executive Committee.

7. Suggestions as to distribution will be gladly made to any state association wherever requested, but the National Association will not be responsible for the division of money in the several States.

GREAT MORTALITY OF INFLUENZA EPIDEMIC.

DURING the period from September 8th to November 9th inclusive, 47 large American cities of an estimated population of 23,000,000 reported an aggregate total of 82,306 deaths. Assuming that the average death rate during this period was normal, 4,000 deaths could be accounted for as due to other causes, but a

death rate of 78,000 during one month from influenza and pneumonia alone, is indeed a heavy toll. Thus far reports of the ravages of the epidemic prove that the deaths greatly outnumber those of the war casualties in the American Expeditionary Forces. An unofficial report of the casualties among the members of the American Expeditionary Forces during the period from America's entrance into the War to November 9th approximates 100,000 casualties, and of this number, between forty and forty-five per cent., or about 45,000, is estimated as a total loss of life. A startling comparison is therefore brought to light in the report from the Department of Commerce, Bureau of Census, at Washington, D. C., where it is stated that during a period of nine weeks the mortality resulting from the influenza epidemic was nearly double that in the American Expeditionary Forces from the time the first contingent landed in France until the cessation of hostilities. The epidemic ravaged the country generally from coast to coast and reached its height during the two weeks ending October 26th when 40,782 deaths were reported. For the entire nine weeks period, the greatest mortality due to this epidemic in proportion to population (7.4 per thousand) occurred in Philadelphia and the next greatest (6.7 per thousand) was reported for Baltimore. In Boston, one of the eastern cities, a larger number of deaths was reported for earlier periods than that which covered the height of the epidemic for the 45 cities taken as a group and in New Haven, New York, Pittsburgh and Rochester, the maximum mortality occurred later than in the Eastern cities.

MEDICAL NOTES.

FORMER SURGEON-GENERAL RETIRES.—Dr. William Gorgas retired in October from his position as surgeon-general of the United States Army. He will resume the work he temporarily relinquished for war service as director of yellow fever work for the Rockefeller Foundation. He will sail soon for South and Central America.

In January, 1917, Dr. Gorgas was released by Secretary Baker to direct the Foundation's yellow fever commission, which has investigated and studied the conditions in all countries in which the disease has appeared in recent years. The work was temporarily abandoned because

of the war, but it will be resumed and carried on in coöperation with the various local governments.

TRAVEL RESTRICTED FOR PERSONS HAVING VENEREAL DISEASES.—Persons having venereal diseases must obtain a permit in writing before they will be allowed to engage in interstate travel, under an amendment to the interstate quarantine regulations recently announced by Surgeon General Rupert Blue of the Public Health Service. The permit must be issued by the local health officer under whose jurisdiction the persons reside, and it must state that such travel is not dangerous to the public health.

HONORARY MEMBERSHIPS FOR AMERICANS IN LEADING FRENCH MEDICAL SOCIETY.—The Société Médicale des Hôpitaux de Paris elected at a recent meeting, as corresponding members *honoris causa*, Dr. Alexander Lambert, the president-elect of the American Medical Association, director of the medical service of the American Red Cross in France; Col. James T. Case, editor of the *American Journal of Radiology* and chief of the radiologic service of the American Army in France; Prof. William S. Thayer of Johns Hopkins, consultant to the American Expeditionary Force; Prof. Morton Prince of Tufts College, New York; Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, and Prof. Beverley Robinson of the University and Bellevue Hospital in New York, a former intern of the Paris hospitals. At the same time, five British physicians were also elected, including Sir Almroth Wright, Sir Bertrand Dawson, Sir Thomas Barlow, Sir Dyce Duckworth and Sir William Leishman. The motion to elect these eleven honorary members was presented by Netter, the president of the society, Chauffard, Bécélère and Major Rist. The latter had not long returned from a visit to America.

DEBARKATION HOSPITAL OPENED IN NEW YORK.—The largest hospital of its kind in the world and the only one of its type to be located in the business section of a great city was formally opened in New York on November 25. 500 wounded men made up the first contingent of patients.

The new hospital, Base Hospital Number 3, occupies the building that was formerly the Greenhut department store, at Sixth avenue and

Eighteenth street. The hospital has accommodations for 4,000 patients. It will be used as a debarkation hospital to which the wounded men will be taken from the incoming hospital transports. The patients will stay only until they have recovered sufficiently to be able to be transferred to hospitals nearer their homes.

Major W. J. Monaghan is in charge of the hospital. The staff under him includes Captain Whalen, Captain Ralph Jones, and Captain B. B. McClellan.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 30, the number of deaths reported was 241 against 216 last year, with a rate of 16.02 against 14.58 last year. There were 36 deaths under one year of age against 31 last year.

The number of cases of principal reportable diseases were: diphtheria, 41; scarlet fever, 22; measles, 6; whooping cough, 8; typhoid fever, 2; tuberculosis, 41.

Included in the above were the following cases of non-residents: diphtheria, 6; scarlet fever, 2; whooping cough, 1; typhoid fever, 1; tuberculosis, 2.

Total deaths from these diseases were: diphtheria, 1; tuberculosis, 16.

Included in the above were the following non-residents: tuberculosis, 2.

FLORENCE CRITTENDON LEAGUE OF COMPASSION.—In a circular letter sent to physicians in New England, the Florence Crittendon League of Compassion offers to the profession the facilities of its Maternity Home and Hospital for such cases as physicians may desire to refer to them. The Medical Staff is composed of men who have graduated from Harvard Medical School and at least two other hospitals. Attention is called to the six months' Course in Obstetrical Training for Nurses.

MASSACHUSETTS STATE CONFERENCE OF CHARITIES.—The Massachusetts State Conference of Charities will meet at Springfield on December 5, 6, and 7, for its 15th session. Much of the discussion and debate will have to do with the finding of methods of prevention of social evils rather than remedies for them. The general topic of discussion and debate will be "Social Reconstruction." Men and women who have made a study of mental diseases will offer their

deductions. Among the speakers will be Herbert C. Parsons, deputy commissioner of probation; Dr. Walter E. Fernald, superintendent of the Massachusetts Feeble Minded School at Waverley, and the Rev. Augustus P. Record of Springfield, president of the conference.

UNDERWOOD HOSPITAL IN NANTUCKET.—The influenza epidemic on the Nantucket Island has subsided, and the ban on public meetings has been lifted. The schools, moving picture houses, and churches, which have been closed for three weeks, have been opened again.

The new Underwood Memorial hospital, erected by Mr. H. O. Underwood of Belmont, has been completed and was used as an emergency station during the epidemic. The automobile ambulance given by Miss Sturtevant was of great service during the epidemic.

The new hospital was built at a cost of about \$50,000. It adjoins the building which has been used as a hospital for the past five years.

During the recent epidemic 250 cases have been reported. A temporary home for physicians, nurses, and members of the Board of Health was opened in the Nesbit Hotel.

Obituary.

HARRISON BRIGGS WEBSTER, M.D.

WITHIN a few days of the joyful news of peace, there came other tidings which have changed the happiness of many to deep sorrow—the death in action of Dr. Harrison Briggs Webster of Boston. There was probably no man in his college class who was more universally loved, and to some of us at least it seems still incredible that we shall never again hear his hearty laughter and his never-failing flow of good spirits. These, however, were but the ripples on the surface of a deep and serious nature, which constantly showed a determination to be useful—essential, rather—to his community.

Harrison Webster was born on January 26, 1884, the son of Andrew Gerrish Webster and Lizzie Florence (Briggs) Webster. His education was at Noble and Greenough's School in Boston, at Harvard College (A.B., 1905), and at the Harvard Medical School (M.D. 1909).

In college Webster was a member of several clubs, social, literary and scholastic, among others the Hasty Pudding Club, the Kalumet Club, and the Phi Beta Kappa Society. In ath-

letics he devoted his time chiefly to rowing: in his freshman year he was on the class crew, in his sophomore year on the University four-oared and second crews and on the second Newell crew; in his junior year on the second Newell crew, and in his senior year he was captain of the Newell Boat Club, stroked the third Newell crew, and rowed on the class crew. An operation on his knee in December, 1904, was all that prevented his rowing on the 'Varsity eight. In his senior year he was elected to the Class Day Committee, and, on the academic side, received honorable mention in chemistry, graduating *cum laude*.

Entering the Harvard Medical School in the fall of 1905, Webster was one of a small group of classmates whose career in the school knit very closely the bond of friendship. It was my great good fortune to be paired with him in all the work where the students worked two and two, and a close friendship sprang up between us which "nothing in life could sever." I had known him at school, until I left and attended another; again at college, where, however, I saw but little of him: but in the Medical School we became real "pals" and always remained so.

Webster was one of the best scholars in his class at school, and was elected to the Alpha Omega Alpha Society, which corresponds to the Phi Beta Kappa Society in college; he also joined the Aesculapian Club, was class secretary for three years, and was marshal of his class at Commencement in 1909. He received one of the first appointments to the Massachusetts General Hospital, and served there as surgical house officer from July 15, 1909, to November 30, 1910.

After a short term at Bellevue Hospital, New York, his love of the North and its freedom from the trammels of civilization, which he had experienced during the summers of 1905 and 1907 with Dr. Grenfell in Labrador, led him to take up this work again; he spent the spring and summer of 1911 at Battle Harbor, and then joined his classmate, Dr. Hugh P. Greeley at Pilley's Island, Newfoundland. At Dr. Grenfell's request they converted an old miners' shack into a hospital in an entirely new field, and equipped it for medical and surgical cases. They were the only doctors within a hundred and fifty miles. Here he spent the winter, travelling by motor boat until the ice closed navigation, and then on snowshoes or by dog-team, matching his ingenuity against the almost

total lack of surgical facilities, and doing pioneer work among a poor but grateful population. In his letter to the class secretary for the decennial report, Webster speaks of this as "the best year of my life."

Returning in the spring of 1912, he found himself more than ever dissatisfied with life in a large city, and settled in Castine, Maine. After a year of practice there, he married, on May 1, 1913, Margaret Isabel Gleason of Northampton, Mass. By 1915 he had bought a house in Castine, and fitted it up as a six-bed hospital, and his practice had become very successful when, in April, 1916, the United States entered the war.

While in college and in the medical school, Webster had been a member of Battery A, and had also attended a term at Plattsburg later. He at once applied for a commission, but, tired of waiting, went back to Plattsburg in April, 1917. When he had been there a month his commission reached him, and he was sent to Fort Benjamin Harrison, Indianapolis, and put in charge of the ambulance corps. His organization of this corps was so conspicuously good that when Surgeons-General Gorgas and Blue inspected the camp Webster received personal commendation for his work. Within nine months he was promoted from lieutenant to captain and from captain to major; he was then made director of the ambulance at Fort Oglethorpe in Georgia. His Corps, Ambulance 14, went with him, and again attracted the attention of Surgeon-General Gorgas; he asked what corps it was, and when told, referred to it as "the crack ambulance corps" which he had seen at Fort Benjamin Harrison.

On May 25, 1918, Webster was sent to England, and two weeks later went to France as a regimental surgeon. He was connected with the Forty-seventh Infantry, Fourth Division, under General Robert Lee Bullard. Letters to his family and a letter from one of his men to a Colonel at Fort Oglethorpe tell some of the details of his heroism. It appears that before the American offensive in his zone began, Webster looked the ground over and decided that motor ambulances would not be practicable in such rough country; consequently, he organized a corps of push-cart ambulances, went "over the top" with his men, steered by compass in the dense fog, and found himself with the work of handling the wounded of two regiments, five hours ahead of any other sur-

geons, who, when they did arrive, had only the supplies that they carried on their persons. Here he worked, doing many things outside of his regular sphere of duty. He carried the wounded on his back to the ambulances, and, when the push-carts gave out, sent for mules and attached them to abandoned German wagons. These improvised ambulances he drove himself on mule-back, as he had driven caissons in the old Battery A days. For this work he received personal commendation from his Brigadier-General. Some days later, while pushing with his shoulder to the wheel of a motor ambulance which had got stuck in the mud, he was instantly killed by an exploding shell.

Webster is survived by his wife and three children: Andrew Gerrish Webster, born in June, 1914; Margaret Elizabeth Webster, born in June, 1916; and Dorothy Lancaster Webster, born after her father had left for France, in June, 1918. The exact date of his death is uncertain; the official report states that he died on October seventh, but a letter has been received from him dated October tenth.

Halting all sham and pretence, "Bunty" Webster was a practical, common-sense man, a skilful surgeon, a loyal friend, and a straight-grained gentleman. The words of General Pershing in speaking of Dr. George P. Howe, also killed in action, apply equally well to Webster: "His was one of the spirits that bring pride to our own hearts and confidence to the hearts of our allies."

"Bunty" and I were once looking at a picture of his father's cousin, Lieutenant Frederick Hedge Webster, who was fatally wounded at Fort Wagner under Colonel Shaw; he was but twenty years old at the time, and we wondered whether our generation would respond, with our comfortable upbringing, as did the previous generation, to our Nation's call of need; "Bunty," true heart, has answered the question.

H. B.

Miscellany.

THE VENTILATION AND HEATING OF SCHOOLHOUSES.

At a public hearing held at the State House, June 11, 1918, the appointment of a special committee by the Chief of the District Police, for the purpose of studying the problem of the ventilation and heating of schoolhouses, was urged.

This committee has been appointed and con-

sists of a representative from the District Police, one from the State Board of Education, one from the State Department of Health, an architect, and a heating and ventilating engineer. The committee has held several meetings and realizes that the subject is one of great magnitude, involving the health and comfort of thousands of school children and school teachers. It is of vital interest to every citizen whose children are being educated in our public and private schools; to every city or town or corporation maintaining public or private schools; to school and health officials who educate and care for the health of pupils; to engineers, architects, and builders, who design and erect our school buildings; and especially to the public who provide funds for the erection and maintenance of schools.

The committee proposes to hold meetings at the State House, Boston, in order to gather all the information possible on both sides of the question. The first hearing will be in Room 446, State House, December 14, 1918, at 10.30 a.m. A second hearing will be held December 16, 1918. All physicians interested are urged to come.

Correspondence.

THE COVENTRY CASE.

Boston, Nov. 27, 1918.

Mr. Editor:—

This case (Pratt and others vs. The British Medical Association and others) is of such far-reaching importance to the medical and other professions that it is sure to excite much attention here also. Accordingly, it will be well to have accessible the following references:

Lancet, Oct. 19, 1918, p. 533, a brief note (damages awarded over \$18,000 and heavy costs); ditto, pp. 527, 528, "leader" mentioning that the *British Medical Journal's* "report was a remarkably accurate account of the principal features of the case." This report of the protracted hearings (in the King's Bench Division, July 15 to 30, both inclusive) is in the *British Medical Journal*, Aug. 3, 1918, pp. 123-125; Aug. 10, pp. 135, 136; Aug. 17, pp. 161-164. Note of the decision, at the next term, Oct. 15, is in *B. M. J.*, Oct. 19, p. 451; leader, Oct. 26, p. 472, that appeal had been decided upon; ditto, supplement, pp. 53-60, giving full report of the judgment. Nov. 2, p. 502, a note of hearing on questions of costs, and application for injunction on the Association in place of its undertaking, but this the Court was compelled to postpone.

Comment could not be compressed into space available.

ALFRED F. A.

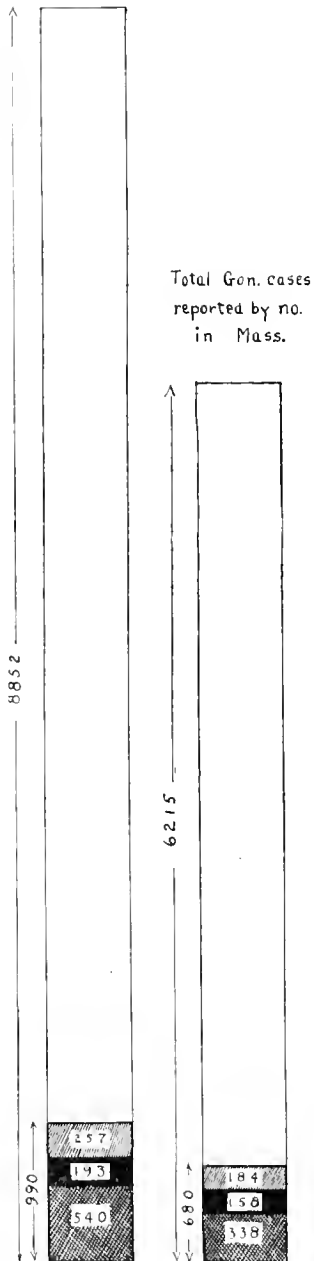
RECENT DEATHS.

DR. W. L. WASSON, Superintendent of the Vermont State Hospital for the Insane, and an authority on mental diseases, died recently in Waterbury, Vt.

SAMUEL ABBOTT GREEN, M.D., a retired Fellow of The Massachusetts Medical Society, died at his home in Boston, Dec. 5, 1918, aged 88 years.

REPORT TO NOV. 1, 1918 MASSACHUSETTS

Total no. V.D. cases
reported by no.
in Mass.



Reported by name only

Replaced under treatment

Unable to locate

In process of follow-up

*Reported by name also for lapsing treatment

NOTIFICATION OF VENEREAL DISEASES.

THE accompanying self-explanatory chart presents the results of the reporting of cases of venereal diseases in this Commonwealth and in Boston during nine months of the current year. These diseases were made notifiable by the State Department of Health on February 1, 1918, as a war measure, which was announced in the JOURNAL at that time. It will be seen that the results have been highly satisfactory, and further benefits are to be expected from the continuance of this policy after the establishment of peace.

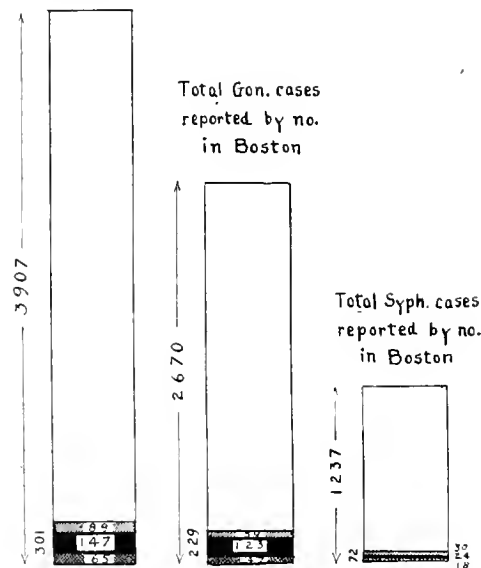
BOSTON

Total V.D. cases
reported by no.
in Boston

Total Syph. cases
reported by no.
in Mass.

Total Gon. cases
reported by no.
in Boston

Total Syph. cases
reported by no.
in Boston



Reported by name only

Replaced under treatment

Unable to locate

In process of follow-up

*Reported by name also for lapsing treatment

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Original Articles.

THE SCOPE AND AIM OF MENTAL HYGIENE.*

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MENTAL hygiene is no longer concerned merely with the care and prevention of feeble-mindedness and insanity; and, while in the minds of some it may still be associated with certain fads and vagaries, it now rests on a solid foundation of scientific fact, and has already made important contribution to the mental health of normal children and adults. Recent studies, however, have greatly increased the scope and significance of the subject. The best way to show this is by briefly enumerating some of these investigations.

1. The war has greatly increased the scope of mental hygiene. And, on the other hand, mental hygiene has made a contribution of vast importance and unprecedented character to the war, in its examination of officers and men for the detection of nervous and mental disorder, in the reëducation of disabled soldiers, and in its aid to the morale of the army.

This last is distinctly the aim of mental hygiene; for the conditions of morale and of mental health are practically the same. This morale depends upon training. War is a crucial test of a nation's education; and the behavior of soldiers reflects the character of their training.

Again, the effect of the war upon children suggests the need of sound mental hygiene. Investigations indicate that children in the war zone are largely protected from fear and worry by their natural attention to the present and the concrete details of any situation, however terrible, but in prolonged wars the strain has its effect. One of the saddest reports of the Thirty Years War was that the children were no longer seen playing in the streets of the German cities; and in some localities in the present war it has been said that the children have forgotten how to smile.

Especially important for mental hygiene is the lesson of the war in regard to nervous disorders. Shell shock and similar neuroses develop, not as the result of severe wounds and grave lesions of the brain, but rather in the psychic field on the basis of congenital tendencies, special sensitiveness to stimulation, or the like, and after a period of great strain, fatigue and sleeplessness.

* The special aims and purposes of the Massachusetts Society for Mental Hygiene have been presented in Publication No. 1 of the Society.

These cases are instructive because they show in large letters what may occur in any individual subjected to sufficient strain. Mr. G. Elliott Smith has well stated the relation of the war neuroses to the disorders found in times of peace as follows:

"The incipient forms of mental disturbance which the anxieties and worries of warfare are causing ought to impress upon the attention of everyone that such causes are also operating both in war and peace, and are responsible for a very large proportion of the cases of insanity, and it is precisely these cases which, if diagnosed in the early stages and treated properly, can be cured. The chief hope of reducing the number of patients in asylums for the insane lies in the recognition of this fact, and acting upon it in the way of providing institutions where such incipient cases of mental disturbance can be treated rationally, and so saved from the fate of being sent into an asylum."

In order to apply the principles of mental hygiene and to give that mental training that may preserve an individual from nervous disorder and insanity a great amount of time is necessary. It would seem almost impossible to supply the necessary institutions for this purpose. It is a question whether it would be desirable to do so. Apparently the only institution where there is time for proper training of this sort is the public school, and here is where the principles of mental hygiene should be applied and instruction and training adapted to those individuals who are oversensitive to stimulation and liable to become victims of nervous disorder. This can be done, because the form of treatment required is precisely in harmony with the training that is given in the best schools. What is necessary is that teachers should be given adequate preparation for such work and that time and attention should be devoted to the detection and care of such children.

With proper training of these children in the public schools the question would soon arise why must a child be defective in order to have the benefit of mental hygiene and the demand be made that all children share in such training and that the principles of mental hygiene be followed in all the methods and discipline of the school, and that all teachers have a knowledge of this subject and be prepared to

follow the well-recognized principles of mental hygiene in all their work.

2. Physiological studies, both before and during the war, have placed mental hygiene upon a solid scientific basis. What occurs in the brain when the mind thinks, was the problem attacked long ago by the great Italian physiologist, Mosso. And a long series of investigations since have shown definite physiological changes correlated with mental work, changes in the distribution of the blood, an increased liberation of heat and increased metabolism. The simplest test of these changes is the increased pulse rate that accompanies attention.

Among the most important of the physiological investigations are the studies of the glands with internal secretion, the thyroid, the thymus, the pituitary, etc. Although the function of these glands was not discovered until recent years a vast literature on the subject has been produced. Biedl in the second edition of his handbook, although omitting the less important of the older literature, presented a bibliography of 250 large pages. And since that time an enormous number of books and articles have appeared.

These modern studies, especially those by Cannon and Crile, have shown not only that normal growth and development depend upon the proper functioning of these glands, and that certain forms of feeble-mindedness, cretinism, myxedema, and the like, are caused by defect in one or more of them, but that their normal functioning is significant for our life of feeling and action.

The fascinating story of the relation of the adrenal glands, for example, to the different emotions and to worry and anxiety, suggests in definite scientific terms the far-reaching significance of normal mental states for normal metabolism and normal activity of the whole physical organism.

If we can trust the studies of Crile, the physical effects upon the nerves from long-continued worry and emotional strain is precisely the same as that brought about by drugs and the toxins of infectious disease; and, on the other hand, just as the injurious effects from the overstrain of the so-called kinetic drive can be remedied in some cases by a suitable operation removing a portion of the over-active gland, or by the use of morphine, in

like manner the same effect can be brought about in some cases by removing the worry, and by sleep and rest, if this be possible.

The results of these studies of the glands with internal secretion are of great significance for practical mental hygiene. Apparently they are not only the vital organs regulating growth, but the physical organs to be specially considered in the hygiene of emotion.

3. Recent studies in psychiatry have also greatly broadened the field of mental hygiene. They have shown the possibility of preventing many forms of mental disorder; especially cases on the borderline between the normal and the defective, cases of the manic-depressive type, the various anxiety neuroses and fatigue psychoses, and even some cases of dementia praecox, where suitable environment and suitable training can be provided. They have shown that in many cases the best means of cure is some form of reëducation involving the development of wholesome interests and regular habits of attention and orderly association. This method, so helpful for cure, appears even more significant as a means of prevention; and thus is opened a wide field for the work of mental hygiene, especially among children and youths. It is a grave reflection upon the schools that so many of their graduates have to be reëducated in the sanitarium or the hospital.

4. Psychology in recent years has made many important contributions to mental hygiene. Among the most noteworthy of these are the results of the Würzburg School in Germany and of Dr. Baird and their other followers in this country. These investigations have shown that deeper than the life of perception and ideas are the mental tendencies, the sets of the mind, the mental attitudes, and the like.

In all education the importance of the mental attitudes is clear. Pupils carry away very little book learning from the schools, as every teacher knows, but the mental attitudes developed are the vitally important things; and these have a double significance, on the one hand for the mental efficiency of the pupils, and on the other, for their mental health. As Dr. Abbot suggests, probably many cases of mental disorder could be prevented by the development of proper attitudes toward life. These attitudes are determined not only in the home,

but in the school, by the tasks set for the pupils, by the directions given by the teacher, by the presence and behavior of the other children, and by the whole environment of the pupils.

Many other investigations, especially in experimental psychology, have widened the scope of mental hygiene. Of these I can speak of only one.

5. The most important contribution to mental hygiene, providing a method of unlimited application, is probably the modern study of the conditioned reflex by the Russian school of Pavlov and the adaptation of this to the study of children by Krasnogorski and by Drs. Mateer and Watson in this country.

The difference between an ordinary reflex and the conditioned reflex is easily shown. If I give a dog a piece of meat, at once there is a flow of saliva. That is an ordinary reflex. Pavlov has shown that, if every time one gives the dog meat a bell is rung, after a time the mere ringing of the bell without giving meat will produce the flow of saliva. This is a most remarkable result. An entirely indifferent stimulus, the sound of the bell, has become associated with the biologically adequate stimulus, the meat, and produces the same physiological reaction. The flow of saliva brought about by the mere ringing of the bell is a conditioned reflex, and the sound of the bell is called a conditioned stimulus.

Pavlov has developed an elaborate technique for the study of this subject and has shown that the sensation from any receptor organ—sight, hearing, the dermal senses, etc.,—may be made a conditioned stimulus by repeated association. Krasnogorski in Russia, Dr. Mateer at Clark University, and Dr. Watson at Johns Hopkins have shown that motor conditioned reflexes can be developed in children and that the ability to form such reflexes is correlated with the development of the mind and brain.

All this is of great importance to education and hygiene; for it furnishes an objective method for studying the development of the brain cortex on the one hand and the growth of habit in the individual child on the other hand. All training in animals and children consists largely in the acquisition of conditioned reflexes.

Besides the reflexes important for training, a number of unfortunate or pathological reflexes may be produced by the conditions of

home and school life. A single illustration may be cited from Dr. Habermann. "A child is late for school, rushes through its breakfast, feels extreme anxiety as to the outcome (scolding, humiliation, being kept in, etc.), and finally speeds off to school. After reaching there it vomits. On the following day, although there is no rush nor anxiety, through association of what happened the day previous, it vomits again. The child I have in mind was congenitally neurotic; the quite normal child would probably not have reacted in this way. In fact, we see these pathological association reflexes forming in individuals who are 'sensitive,' or congenitally predisposed."

We know relatively little about the conditioned reflexes developed by our ordinary school and home environment; but the studies made show the vast number of them acquired by a child during the period of school life—groups of habits and associations probably for every subject of study in the curriculum, perhaps for every teacher and companion—and the importance of them for the mental health of the individual.

6. Another class of investigations partly psychological and partly psychiatric, namely, the studies in psychoanalysis made by Freud and his followers, have contributed much to mental hygiene, by showing the great importance of normal emotional and instinctive life in early childhood, the persisting evil results that may come from any unfortunate emotional shock, even in the days of infancy, and the danger from abnormal domestic relations—undue dependence on father or mother, undue repression by the parents, or the like.

These studies are significant not so much because the psychoanalysts have shown the widely irradiated effects of disturbances of normal emotional life, but because this work furnishes illustration of the great principle that opportunity for normal reaction to emotional or instinctive stimuli should be furnished, and of the pathological effects that may occur when such opportunity is not given.

In spite of somewhat erratic terminology and sometimes fantastic illustrations, Freud has also made important contribution to the general and applied psychology of feeling and association. Just as Pavlov and his school have shown that any sensation whatever from any receiving organ may become associated

with an ordinary stimulus and bring about precisely the same physical reaction, so the studies of Freud apparently have shown that in some cases at least, when a normal reaction is blocked, any kind of a reaction, physical or mental, associated with the ordinary reaction, may take its place and function vicariously.

If in case of children normal reaction is blocked by an effort of the will, if a disagreeable thing is put out of mind, then, according to the psychoanalysts, it is apt to become associated with something else, either with some idea which is endurable, or with some physical pain or the like which is preferable to facing the disagreeable fact. All sorts of defenses of this kind may occur.

Although not all of them have been advocated by Freud, so far as the writer is aware, the hygienic measures suggested by this are obvious. First, the keeping up of the general mental health, the health level, which enables one to resist strain; second, the transfer by association of the painful or distressing idea with some intense interest or enthusiasm; third, the habit from early childhood of normal reaction and of absolving or removing the mental traumas, or the results of mental shock, as soon as they are produced, a habit, as we may say, of squaring one's moral accounts each day. This training, simple as it is, is of the greatest importance.

These and many other recent investigations in psychology and hygiene have shown the importance of what may be called the mental factor in determining conditions of efficient work and healthful reaction. Even the recent studies of the conditions of the temperature and humidity optimum for mental work reported by the New York Commission on Ventilation indicate that within rather wide limits the mental factor is more significant than the external physical conditions of the atmosphere.

The mental attitudes, interests, and associations are matters definite and tangible, the objective study of which, together with the investigation of the physiological conditions of mental activity, has taken the subject of mental hygiene out of the realm of speculation and fancy and placed it upon a solid foundation of scientific fact. These studies have enormously increased the scope and significance of mental hygiene.

THE FUNCTION AND AIMS OF MENTAL HYGIENE.

Mental hygiene aims to save society from the burden of feeble-mindedness and insanity—a burden the money cost of which is enormous, the results of which in sorrow, misery, and crime are incalculable. It aims, however, not only at the prevention of acute mental disorder, but at the development of wholesome interests and habits of healthful mental activity in all normal children and adults—habits that ensure happiness and efficiency as well as sanity. It aims at nothing less than the development of morale in all classes; it aims to develop that everyday patriotism which is ready to sacrifice personal interest for the welfare of the social group—the family, the community, the church, the state, the world. It aims at all this both for the health of the individual and for the welfare and sanity of the social group. To realize these aims mental hygiene would apply the simple fundamental principles of mental health in the home, the school, and all agencies for education; it would apply the principles of a fearless democracy, especially in education, to give all the opportunity according to their ability to develop the capacity as well as the will for service, and to become superior men in something, according to their talents. Thus, everyday democracy, every-day patriotism, and every-day service, are the natural outcome of mental hygiene.

More concretely, the function of a mental hygiene society is sixfold, namely, to aid as far as possible in the following:

1. The care and prevention of feeble-mindedness and mental disorder, the traditional function of such societies, for which they were first organized. This, of course, should be continued.

2. Care for defective delinquents and the large class of other defectives found in every school.

3. Care for the mental health of normal children, a function that cannot be too strongly emphasized.

4. The development of every-day patriotism and every-day democracy, and care for the mental health and morale of our citizens and of the soldiers and sailors in our army and navy.

5. Care for the mental health of all those

who, in this present time of stress, are subjected to unusual burdens and anxieties.

6. Care for the wounded and discharged soldiers who are returning from the war with nerve shock and the like.

The importance of each of these is obvious. No one of them can be neglected. Even if for the present some of these cannot be performed, nevertheless, the aim should be to help in all.

If much of all this seems a form of social service in the field of morals, that is not strange; for sound morals and mental hygiene are in large part identical. Morality is by no means indifferent to hygiene; indeed, hygiene is the basis of a sound morality, for it assumes that health will be used for worthy ends.

The social service that can be rendered in the field of mental hygiene is of two kinds, help for individuals and aid to social groups. It is not merely a matter of developing honor, loyalty, self-control, interest in work, and the democratic spirit among individuals, but also a question of mental health, sanity and the democratic spirit in social groups. Irving Fisher recently referred to the great danger of discontent among laboring men when workers return from the soldier's life, and he notes that some economists have come to the conclusion "that the solution of the problem of industrial discontent . . . will lie along the lines of making the workman genuinely interested in his work." The mental hygiene societies may well coöperate in developing wholesome interests in this great social group.

The period after a great war is the great opportunity for education, especially for the defeated nation. For example, this came to Germany over a hundred years ago when humiliated under Napoleon. At that time the great philosopher, Fichte, told the German people that they must make up in the intellectual world what they had lost in the material world. Fichte's advice was followed, and from that time dates the great educational and scientific development of Germany. From the defeat of France in 1870 dates the renaissance of that nation. From the German victory of that time dates the development in German education of the extreme collectivism that has wrought the ruin of that country.

Nothing better for the welfare of Germany could have happened than a thorough defeat. In her present pathological condition it gives

her the opportunity for healthful reëducation. To the allied nations, the most serious crisis since the first battle of the Marne has now come. As Clemenceau has recently said, it will be harder to win peace than to win victory. For America the present represents a period of gravest danger of those extreme and unrelated developments which threaten the health and sanity of the nation. In helping to meet this danger and in aiding educational reform lies the greatest opportunity that has ever existed for mental hygiene.

THE MASSACHUSETTS SOCIETY.

The National Committee and the various state societies for mental hygiene take a broad view of the subject. From the beginning the Massachusetts Society has attempted "to combat mental disease from the point of view of prevention." Maintaining an office and an executive secretary, it has carried on a campaign of education by providing competent speakers, distributing pamphlets, and imparting information in regard to the data, laws, practices, and literature of mental hygiene.

The importance of a mental hygiene society for the welfare of the community has been sufficiently emphasized, but few realize the amount of money needed for its activities. For example, the Massachusetts Society has issued a little leaflet, "How the Soldier Keeps His Nerve," and has distributed this to training camps for officers all over the country. The cost of publication is about one cent a copy; but to supply this to 2,000,000 soldiers without postage would cost \$20,000; to supply only the officers, \$3,000 or \$4,000.

The Society has also published a leaflet for teachers and parents that costs about a half a cent per copy. To supply this to the 700,000 school teachers in the United States, with one-cent postage, would cost \$10,000. To supply it to the teachers in Massachusetts alone would cost about \$250. And it would cost much more to distribute widely the larger publications of the Society, important for teachers and the general public, such as Dr. Abbot's *Preventable Forms of Mental Disease*; Dr. Fernald's *What Is Practicable in the Way of Prevention of Mental Defect*; Dr. Putnam's *Mental Preparedness*; Dr. Southard's *The Major Divisions of Mental Hygiene*; and Dr. Stedman's *Mental Pitfalls of Adolescence*.

While the Massachusetts Society, through its speakers and publications, has reached a large audience, the limited funds of the Society do not yet permit wide distribution of its literature and an adequate extension of its influence.

This Society is always ready to help in providing for the feeble-minded and the defective; it strives to make the treatment of the insane more intelligent and successful; it wishes to aid in the care of soldiers suffering from war neuroses, and in the reëducation of the disabled and the crippled; but it recognizes that its services must largely be the important work of prevention.

The Society aims to prevent feeble-mindedness by segregation and by checking the marriage of the unfit; to prevent the development of insanity where that is possible; to prevent the spread of venereal disease, the use of drugs, and in general the conditions that produce nervous breakdown among children, soldiers, and the general public; to provide for defective and unusual children a training that will enable them to make healthful adjustment to a conventional social environment; to give normal children a training that will ensure happiness, efficiency and mental health; to preserve the morale of our citizens and soldiers, without which victory would have been unattainable, and with which defeat was impossible; and, finally, to give the community the benefit of the truths of mental hygiene at all times.

Prevention is the special task of hygiene both mental and somatic, but the position of hygiene is a peculiar one. Everybody believes in hygiene, although few like to practise it. In this country we seldom do anything to prevent evil. We are expert in meeting trouble after it comes, but we do not lock the stable door until the horse is gone, and thus the public think little about hygienic matters, although apt to be badly frightened when disease comes. Hence the position of the hygienist is not enviable. He is apt to be looked upon as a crank and a faddist. If he is successful in his work of prevention, nothing happens; the work of hygiene is never spectacular, but largely the slow process of education, and therefore, often handicapped.

Thus, while the greater the success of mental hygiene the less the need for it appears, it has its significant message for every man in the most humdrum life of peace, and for

every woman in the monotonous routine of her daily tasks; and in times of stress it has its solace and its aid for every soldier in the trenches, for every Red Cross nurse, for every army helper, of whatever name, of land or sea or air; for every government official, whether struggling with rusty administrative machinery or with red tape, or the victim of unjust blame, or merely overburdened with the stress of normal work; and for every industrial worker, for every woman patiently knitting socks or ingeniously planning wheatless meals for her family, for every father struggling with the financial burden of wages, taxes and loans, for every mother who has sacrificed her son, for every woman who has given her husband or sweetheart.

Such is the scope of mental hygiene. Such is its message. In a time when the danger of mental disorder is more serious, perhaps, than ever before, and the number needing the help of a sound mental hygiene greater than ever before; when we are just emerging from the storm and stress of war; when the hearts of men and women at home are still bearing heavy burdens and the morale of the best soldiers is being tested by a strain more severe than that of war; in a time of numerous fads and cults, when men cry, "Lo here and Lo there, is the kingdom of health," mental hygiene preaches its quiet gospel based upon scientific fact and offers the aid of our vastly increased knowledge to those in need of sympathy and aid, a gospel as significant in peace as in war, as important for children as for adults, as helpful for normal children as for the defective.

MUNICIPAL CONTROL OF DIPHTHERIA.

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To the community, as well as to the health authorities, the motto taken from Pasteur, "It is within the power of man to banish from the world all infectious diseases," is of life-saving interest from the standpoint of diphtheria. To create any standard for the control of a disease, that method which results in the most positive prevention as contrasted with all other methods should have the basic consideration. With the majority of known infectious diseases there are two factors for prevention when the etiology and the method of spread of the dis-

ease are known. An illustration in terms of that disease where today the greatest strides in prevention have been made, namely, typhoid fever, is illustrated either by prevention as carried out by Japan in their late war by carrier search and sanitation without emergency or continued vaccination against the disease, or that of other countries who have relied on the latter factor primarily. Extended to communities we find that New York City has made an enviable record for two years by primary action devoted to the finding of carriers among food and milk handlers, with advocating vaccination as the emergency prevention.

If we apply what methods have been brought forward regarding the control of diphtheria, we find that New York City stands sponsor for immunization against the disease as not only preventive, but as emergency treatment as well, based on the demonstration of susceptibles by the Schick reaction. Under the age of 18 months all children should be immunized, as the majority of children lose their maternal immunity after the sixth or ninth month; over the age of 18 months the Schick reaction becomes the criterion. It is stated also that those who do not give the reaction are *probably permanently immune*. The manner of reaching the children is through the homes, institutions and public schools. Adults who come in close contact, especially attendants in contagious disease hospitals, should also be reached. It is also stated that "*the immunity developing from the toxin-antitoxin is slow in appearing, and is, therefore, not a reliable safeguard in hospital wards where children are crowded together and suffering from various contagious diseases.*"

As limitations under this method, we have the ability to reach all children and any children only under the so-called educational responsibility placed directly on those responsible for the children. Secondly there is yet a wider limitation as applied to adults. Thirdly, and the essential point of true responsibility, as illustrated with typhoid fever, there is an absence of consideration of the scientific basis factor, the carrier.

When one studies the disease from investigations and observations in the field, there may be found a method which presents prevention from the point of view of true prevention, namely, the carrier. Having shown how such

DIPHTHERIA

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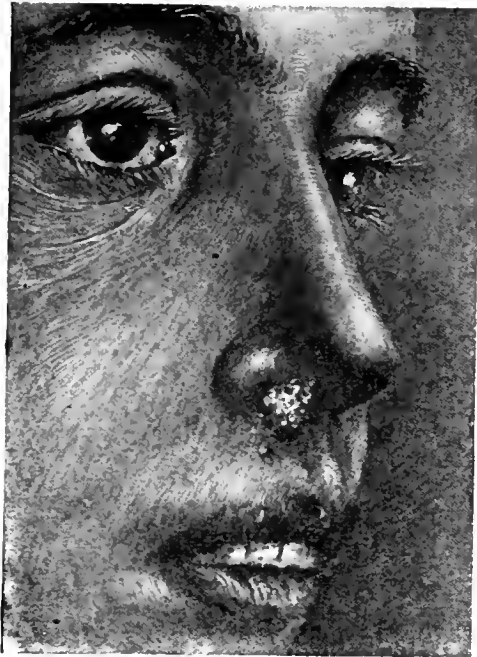
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are definitely accounted for, when the carrier is found. Absence of cases for a period of months, even years, during a period of frequency in adjacent wards with a similar previous frequency in the former district are obtainable. This is well illustrated in the appended charts for the years 1917-18 in the 13th ward. Especial stress has been laid by me on the making of carriers during the periods of frequency of grippe and measles. Almost conclusive in itself is to chart the frequency of measles and diphtheria week by week; the records of the four principal cities of this State so charted show regularly by years that following a rise of measles there ensues during the next month the rise of diphtheria with fatalities where previously there had been but few or no cases and no fatalities.

What are the advantages of this method as compared to the former? Based on the experience that only what may be seen is to be looked for and that the what to be looked for is the unusual, *if it is accurate*, it should give definite results, gain time for larger amount of work by directing procedures for a small proportion of the children or adults, the main gain being in that concerned from cultures, and not require the basis of the former method. active immunization or a procedure for detecting susceptibility. The sum total expressed in terms of responsibility directly assumed by the

From observations, as I have shown, the activity of the chronic recurring carrier is in terms of recurring head colds and are very definitely non-contagious for cases. They are individuals who have had the disease and are the ones generally responsible for further carriers who have not had the disease, but for reason of deformity, generally unilateral, have an ordinary head cold infected directly by such primary carriers. Cases are traceable to the secondary carriers. Their numbers and distribution, whether family, house or neighborhood,



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health authorities rather than the latter placing responsibility elsewhere is a basic fundamental.

What are the results in terms of our advantages? I have shown that for three years this city has never had a recurrent case except *convalescent nasal carriers were discharged by the hospital with consecutive negative cultures*, that secondary family cases have been reduced to the minimum of family disregard for the demonstrated carrier which has been from the standpoint of the attending physician as well, that secondary neighborhood cases have been reduced and, a point appreciated in this city, that during one and one-half years past no house of the better residential section, with but one exception, has had a case of the disease. This exception was related as Case 3 in my "Study of Diphtheria Carriers." If now it is realized that this work characterized the investigation of and prevention of the disease in institutions as well, namely, the Gaylord Farm Sanatorium, and the Orphan Asylum of this city and was done without the dependence on the Schick reaction, active immunization or prophylactic antitoxin under any circumstances during these years, such results as obtain are the more valuable. The definite assurance of absence of secondary or recurrent cases gained from the first two years' work on the carrier was the warrant for not only not taking



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up these procedures, but of personally advising against them as time consuming, frequently impossible for complete use of, but especially as misdirecting responsible attention from the basic cause.

Results are definitely those expressed in deaths per 100,000 population when consideration is taken of the factors that cause the similar frequency of the disease; namely, cities must be compared which have similar climatic conditions, a mixed population and immediately preceding or prevailing respiratory disease frequency. Bridgeport, this State, had, like New Haven, a high frequency of measles in 1917, in terms of deaths 12.5 contrasted with New Haven, 13.5 per 100,000. The diphtheria rate, respectively, was 20 and 16. As stated in my "Study of Diphtheria Carriers," the early fall incidence of reported diphtheria was higher than the previous year and was exactly following the ward incidence of previous measles. The measure of two nurses inspecting all children in school and a small proportion in selected districts during December, 1917, and January, 1918, gave the following rates: Bridgeport, for the first quarter 1918, 14; New Haven, 9; for the first half year, 1918, the former city, 16; ours, 4. Extending this to New York the year rate for 1917 was 20 per 100,000, 11 for the first quarter of 1918 and 12

for the first half year of 1918. The rise is coincident with the rise in measles during 1918. Similar figures may be shown also from such as: Boston, 1916, measles, 14.1; diphtheria, 24.3; and 1917 giving 13.1 and 35.7 respectively. Interesting similar higher rates but corresponding are given by Winslow for cities in Russia.⁵ Further testimony may be shown by the not infrequent number of weeks when there were no reported cases for New Haven during the winter season while the public health reports showed that our neighbors were reporting continued proportional increases. It has been current opinion, in some quarters, that this city was getting away from reporting of diphtheria deaths (even to labelling as well) as grippé, for the reason that the laboratory was doing extensive work on the differentiating of pure streptococcal infections simulating diphtheria and carrying the diagnosis into field work and education. That this had no bearing on the question at issue is shown by the same comparative statistical deaths of the various cities compared, that this city had continued monthly disproportionate lessened total deaths from all communicable diseases as well as those from grippé or streptococcal diagnoses in each and all ages. In itself this was a measure of the finding of such streptococcal carriers.

How trustworthy is nasal inspection only, is a very proper question. So trustworthy that it may be left to institutional nurses after an initial demonstration: that after a similar initial complete school demonstration during the five ensuing months there were but two carriers who got by teachers and caused a single reported found case before the carrier was located. One was the illustration offered, responsibility for which lay with a substitute teacher; one a carrier in a school which did not class themselves as under our jurisdiction. In this connection the reliability of the school absentee card system used by me is shown by the record of the 13 weeks in 1918 for the 8th ward. A substitute teacher failed to return the only absentee not reported in that school for the half year. One week after the day on which we should have had the card for investigation, the absentee and two other children in the family were sent to the hospital by a physician, on his initial call, as diphtheria. The absentee and a brother, a cripple from active bone tuberculosis, were both dead in the ensu-

ing 24 hours, and three other children in the family were sent a few days later as cases, although inspection of them had shown them to be neither carriers nor cases.

The appended charts show the incidence of reported and found cases by weeks and by wards for the years I have been working on the disease with, for comparison, that for months for the previous nine years. Deaths are shown by crosses. With measles epidemic in 1917, causing the greatest number of deaths since a similar epidemic in 1906, what follows as well during and after a small frequency in 1914 is well shown by the charts. The greatest number of deaths from diphtheria follow in the first half year during those years immediately following a high measles. The greatest number of deaths during the last half year is during a measles year, or one of grippé, which gives a lesser preponderance. Results, then, are very apparent, not only for the first half year of 1917 over 1914, but even greater over the first half year of 1918 over the similar period of 1915. Similarly, the last half of 1917 shows results in comparison to the similar period of 1914. If now we state that the results through 1917 were those of carriers as found through our school card system and in connection with reported cases, that measure has given excellent results over other cities having similar conditions, and results over our own city under previous similar conditions. The record of the last month in 1917 and that of the first month of 1918 show what happened when two communicable disease nurses spent all their time systematically seeking carriers, in schools, institutions, and scratching the surface of the pre-school age during the ten days' holidays. Following those two temporary months, one nurse became a permanent appointee. Inasmuch as one nurse could cover little ground systematically or larger areas at random, I picked out the 3rd and 4th wards as the hotbeds of infection as shown by the past records. House by house, street by street, this nurse covered in the following months the half of the 3rd ward where measles had been and whooping cough was preëminent by reason of excess of foreign population, and one-third of the 4th adjacent ward where similar conditions held. Taken in terms of frequency, the records of these two wards in terms of previous years and that relative to the other wards both in terms of 1918 and the latter's record

for other years is a very striking demonstration of what results may be gotten by our method.

Practical municipal control of a disease is necessarily further bound up in the question of finances. That system which entails a lower cost during epidemic frequency and especially which from any measure of control prevents epidemic frequency is essential. The record of this city from the opening of its isolation hospital for contagious diseases in amounts expended for city cases of diphtheria is as follows: 1915, 23 cases, \$1,229, including one carrier, \$458; 1916, 17 cases, \$1,262.30, including the carrier mentioned, \$718; 1917, 33 cases, \$1,965.34, including the same carrier, \$736; 1918 (first half year), 12 cases, \$715, including the same carrier, \$424. This record is consistent with our previous results; from the money saved to the municipality for expenditure of city cases of diphtheria alone we have paid in 1918 for the services of one communicable disease nurse, of whose activities such work is but one part.

In sum, municipal control of a disease in theory means practical control in terms of true prevention; in practice it should be able to demonstrate results in conformity to such and in excess of methods not having such a basis. Our results from the standpoint of true prevention, based solely on the carrier, even in the absence of nine-tenths the pre-school age inspection such as is a part of the method expressed in terms of proof, are the warrant that we have a system demonstrating all factors necessary for the control of diphtheria. That this system is operated by a simplicity, a rapidity of directness and a surety of results on all lines, including financial, as should be consistent with personal municipal responsibility, is further expression that we have true municipal control of the disease.

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HABIT VERSUS INSTINCT IN EATING.

BY HUGH PAYNE GREELEY, M.D., MADISON, WIS.

THE fact that the recent article by Professor Osborne published in the *Atlantic Monthly* for

September entitled "What and How Much Should We Eat?" can pass unchallenged by the practising physicians of the country, indicates to me the great necessity for studying the practical application of the science of nutrition as it has been developed in our great nutrition laboratories.

Having for many years been a student of metabolism in its practical bearing in the treatment of disease, I read the above mentioned article with great interest. Such an eminent authority as Dr. Osborne I would not wish to dispute, but I feel that a fuller discussion of certain statements would be helpful.

Professor Osborne makes this statement: "It has been generally held that overeating, except within narrow bounds, is impossible, for the subject will either grow fat, which, of course, has its limits, or will feel badly and cease to eat in excess until a normal condition is established;" and later, in the article, "Can a man overeat habitually without either growing fat or dyspeptic?" and again, "If surplus food above that needed for the daily tasks of life can be disposed of by increased rate of metabolism, can such a stimulation of metabolism be frequently endured without sensations of discomfort?"

In the practice of medicine the fat man who from instinct ceases to eat until a normal condition is established does not exist. His instinct must be aided by strong will-power and great self-control and the establishment of a normal condition, seldom, if, ever, takes place from a reconstruction of diet alone. Another class of people certainly can habitually overeat without getting fat or feeling badly, particularly without getting indigestion. It is common knowledge that some people cannot get fat and yet they are without organic cause for leanness. It seems to be a matter of temperament or metabolic rate. It is also common knowledge that these individuals can constantly overeat without sensations of discomfort. Constant overeating may produce one of three things,—obesity, indigestion, or metabolic disaster, such as diabetes. Is it not probable that stimulation of the metabolic rate for years might break down metabolic processes in the same way as running a motor with a wide-open throttle will shorten its life through premature exhaustion? Our experience would certainly corroborate this belief, and explain many cases of diabetes.

In another place Professor Osborne says:

"Waste of food from overeating is doubtless small and quite likely fully compensated for because a large portion of the 'good feeders' are among the most efficient in every community." The efficiency of these individuals shortens their lives in direct ratio to the number of pounds overweight they are. Physically, they are many of them effete. Mentally, many of them, by temperament and habit, show a capacity only second to that of their stomachs, while many more show a mental capacity like that of the Fat Boy in Dickens. It is likewise a common experience for men to reduce their weight and limit their rations to increase their efficiency in every way. Even the "good feeders" who are not overweight, experience this.

"A millionaire could not possibly eat as much in a week as a coal heaver unless he engaged in exercise more severe than would be agreeable." If you tried a stuffing experiment no doubt this would be true. But in real life the millionaire often does eat as much or more, and it is easy for him to do it because of his choice of food. Fat in the form of butter, cream and rich meats, and sugar in rich desserts and cake, will allow the millionaire to "win at a walk" without eating anywhere near the same bulk of food.

The statement that "it is not at all improbable that many delicate people of sedentary habits who eat but little suffer chiefly from a deficient supply of vitamins" is one which the practical clinician would feel inclined to dispute. As the main deficiencies in diet result from too little variety in the food and as the chief interest of many of these delicate people is to obtain variety and tempt their appetites with all sorts of delicacies in and out of season, it seems probable that their physical vigor suffers more because they do not use what little they have. In other words, their temperamental habits are more at fault than absence of vitamins. The value of exercise lies in the exercise itself as much as in anything else. Strength and physical vigor come from exercise and not from food, except indirectly. The indolent and well-fed have often less physical vigor than any other class. It is only by using one's strength that one can increase his strength, and in this light it may be independent of food. If it is true that few people overeat as Dr. Osborne supposes, it is certainly true that fewer people undereat, except from poverty or lack of food.

Professor Osborne says, "There is probably less overeating as measured by accumulations of fat above the normal than is popularly supposed." We have here to determine just what is the normal. Statistics of hundreds of thousands of individuals collected through life insurance examinations give us average weights for individuals of all ages. This average has been considered as the normal, but a close analysis of these tables in connection with later statistics of the duration of life, shows that this average weight is too high from the viewpoint of longevity. After a person is thirty years old it is a positive advantage to be ten or fifteen pounds "underweight," and such individuals, far from being looked upon with suspicion by insurance companies are actually considered better risks than those of the so-called normal weight. These facts come from medico-actuarial experience and the most careful tabulation of statistics and facts brought out by such studies are as scientific and reliable as those applied to man from studies of albino rats.

Again Professor Osborne says: "Successful stockmen make their animals eat all they will, in order to obtain maximum production and profit." I do not pretend to dispute this, but I am told by experienced stock breeders that highly bred stock require the most careful feeding and that feeding to obtain maximum production often ends in disaster to the animal, which stockmen then refer to as being burned out. It seems to me that a clear distinction should be drawn between wild animals and highly domesticated ones. The wild animals, by instinct, eat what is best for them. Domesticated animals, bred for special purposes in an artificial environment with artificially prepared foods, need guidance at the hand of the breeder. Their instincts are not adequate, and why should they be? The same distinction applies to man. Pure races in their natural environment choose wisely and well in their food though their tastes differ widely. Races like the Eskimo and the Japanese live upon adequate, balanced diets. They are living under natural conditions which have not changed for centuries. As soon as a people become "civilized" and when races become mixed and emigrate to countries which supply new climate, new foods and new conditions of living, where new methods of transportation and preparation and storage of foods have changed the whole nature of things, then instinct no longer can

be spoken of at all. Habit and taste take its place. When Professor Osborne says that dietary habits which satisfy these promptings of instinct are among the most difficult to change, whereas those that do not satisfy instinct are easily changed, he shows a better acquaintance with the dietary habits of the albino rat than with that of his fellow men. Dietary habits are habits, and I have yet to see any dietary habits easy to break, or any other habit that has existed in an individual or a race for a generation or a century. For nearly two years I worked in Newfoundland among a people who suffered from deficiency diseases and in all that time they did not learn to eat more than one new food.

The changes that have gradually taken place in our dietary over the last one hundred and fifty years are extraordinary. Professor Osborne refers to the lack of vitamins in some of our highly milled flours and warns against them. Our American dietary tastes are more and more running toward these refined foods. Think of the prepared breakfast foods of today that did not exist a generation ago. Think of the changes that have come over our national dietary in one hundred and fifty years. For example, sugar consumption has increased during that time from one-fourth of a pound a year, perhaps, to one-fourth of a pound a day. Patent white flour in 1914 had almost completely replaced the partly bolted flours of two generations ago.

When we speak of instinct as a guide to a national dietary, we should consider the nation and the food supply. The Chinese have lived for thousands of years upon a *natural dietary*. We have lived for hundreds of years upon an ever-changing one and one which is becoming increasingly an artificial one. It is true that the West Indian negroes choose a diet for themselves that is nearly ideal. In the West Indies rickets is almost unknown among the negroes. Transplant these same negroes to New York City and ninety-eight out of one hundred have rickets. Instinct does not help them in their artificial environment. But a large part of our population are transplanted. The working people, from necessity, choose what they can afford to buy. The Italians choose a very low protein diet and are physically efficient. The bankers and millionaires choose a high protein diet and are physically effete. The millionaire has not nearly so safe an instinct as the pig.

He has meat or eggs three times a day and fat in excessive quantities. Italian families here get meat once a week, eggs never, cheese and milk only in small quantities, and they eat their bread without butter. It is pretty safe to say that the laborer does not overeat, but the travelling salesman always does.

National dietary studies, unfortunately, do not extend over hundreds and thousands of years, as they should to be of real value to the scientist. The effect of high protein diets on one generation may be small, on one hundred generations very great. The relationship between degenerative diseases,—vascular sclerosis, nephritis, diabetes,—and diet is unknown. I am told that high blood pressure is unknown in Korea. We know that degenerative diseases are increasing in this country, and that they always increase as a people become physically indolent and epicurean. The Chinese coolie, than whom no being performs more physical work, is a "seed-eating oriental." Why do not the English thrive in India? Because they take their insular habits of eating with them, and do not modify their dietary habits to conform with the climate and environment.

In the discussion of the nutrition of man we must carefully distinguish between races living under natural conditions, guided by instinct, and peoples living under more or less modified or artificial conditions and following tradition and habit. We must also take into consideration natural foodstuffs obtained by pure races and artificial, condensed and prepared foods shipped to our very doors and obtainable in ever increasing quantities. Climate and temperament modify the diets of races and individuals. In our country we have extremes of both and races living under the most unnatural conditions, in which from necessity instinct can play little if any rôle in their choice of aliment. Must we not teach the new American his particular dietary needs, both as to what and how much to eat?

Medical Progress.

PROGRESS OF OPHTHALMOLOGY.

BY EDMUND W. CLAP, M.D., BOSTON.

GLAUCOMA FROM ABSORPTION OF SENILE CATARACT.

GIFFORD thinks absorption of senile cataract not so rare as commonly supposed. He has

seen ten cases of practically complete absorption of the cortex. In three of these useful sight was obtained. In six others glaucoma precluded this result. The author thinks that as everyone would develop a senile cataract if he lived long enough, so also everyone would obtain a spontaneous cure in time. But the frequency with which glaucoma occurs with the absorption of senile cataract has been noted by Mitvalsky and Reuss and Verrey. While these writers conclude that the glaucoma or some inflammatory complications cause the absorption, Gifford believes that it is the other way around. The spontaneous absorption causes an increase of tension either temporary and slight, or one that may lead to blindness. The author has now seven cases whose histories support his views. Where the cortex is absorbed or discharged into the anterior chamber a little at a time it is probable that a transient rise of tension occurs but does not attract attention on account of blindness and lack of pain. A larger quantity of cortex in the anterior chamber seems to excite a decided chemotaxis and when with irido-cyclitic symptoms any of this cortex is seen in the anterior chamber it is natural to take it for inflammatory exudate. Perhaps the evil results following couching may sometimes be due to glaucoma from absorption of cortex rather than to the bouncing about of the lens upon the ciliary processes. When the cortex is once absorbed there is danger of glaucoma from dislocation of the loose nucleus into the anterior chamber. Of course these views demand that a senile cataract should not be allowed to become too hypermature even if the other eye still has good vision.

EYE SYMPTOMS IN ACUTE INFECTIVE JAUNDICE.

Weil's disease was shown to be a pathological entity when, in 1914, a spirochaete allied morphologically to that of syphilis was described by several Japanese observers. They proposed to call it spirochaetosis ictero-hemorrhagica. It has appeared in epidemic forms in the armies of both sides. Weekers and Firket in *Arch. d'Ophthal* and Moret in *Arch. Méd. Belges* give detailed clinical descriptions and from the translation in the *British Ophthalmic Journal* the following summary of the ocular signs is taken: Ocular hyperemia was noted in 46 out of 50 cases and appeared within the first few days. It varied from a slight redness to intense congestion with photophobia and

lacrymation and redness of lids, but seldom any conjunctival secretion. It abates after several days but rarely disappears entirely until convalescence is established. Congestion of iris occurs and bilateral miosis and in some cases (9 out of 50) iritis and irido-cyclitis. Mild cases may escape notice but extensive synechiae may form. Atropine usually dilates the pupil fully and then exudate will be seen on the anterior capsule of the lens. These congestive signs are probably due to the local development of the parasite in the uveal tract. Two cases showed optic neuritis but no contraction of fields or central scotoma or diminution of visual acuity. One case had transient failure of sight with central scotoma without ophthalmoscopic changes. One case of acute herpes occurred involving cornea and conjunctiva as well as lids. Conjunctival jaundice was, of course, usual and of no especial significance. Three patients had subconjunctival hemorrhages. Moret believes the vaso-dilation is not of inflammatory origin but is due to disturbances of the angio-tonic function of the suprarenal bodies and the mild neuro-retinitis without functional disturbances he thinks is similar to that seen in other forms of anemia. Van Schevensteen reports retino-chorioiditis as a complication. Hertel (*Arch. f. Ophthal.*) from the German side finds the same ocular lesions and also reports one case of panophthalmitis. He made injection experiments on rabbits and marmots, finding spirochetes in the tissues of the eye always after intra-ocular injections in marmots and often after intra-peritoneal. Those in the conjunctiva might, he thinks, be a cause of new infections.

ETIOLOGY OF ECZEMATOUS CONJUNCTIVITIS.

Cridland has an excellent article on eczematous kerato-conjunctivitis in which recent views on the etiology are discussed. We quote him as follows: Much has been done to show the close relationship of this disease with tuberculosis. The phlyctenule is itself not a tuberculosis for no tubercle bacilli, alive or dead, have ever been found in one, in fact, no microorganisms are found though looked for by many observers. There is, however, much evidence that a tuberculous focus exists somewhere in the body in many cases. In many patients Nies and Paton found the opsonic index was lowered for tubercle and rose as the lesion improved, from which they concluded that the phlycten-

ules were caused by attenuated or dead tubercle bacilli. Stephenson found that in one series of cases 50% showed clinical signs of medical or surgical tuberculosis, while 75% gave a family history of tubercle and in another series of 669 cases tubercle was present in nearly 40%. Several other observers have found similar results. In 1912 Belenky Raskin tried von Pirquet's and Moro's tests on 100 consecutive cases of phlyctenular disease with positive von Pirquet in 90% and the Moro reaction in 85% and eight of the remainder had either tuberculosis or a family history of it. In two cases no such evidence was found. In view of the importance of diet in treatment we must conclude that gastro-intestinal disturbance is a more or less constant factor. Czerny's "exudative diathesis" is caused, he thinks, by an abnormality in the power of fat metabolism. Eczema appears and the child is a prey to infections. This diathesis is not more common in tuberculous families than in others, but is frequently found in nervous families. Overfeeding with milk and eggs or with carbohydrates brings out the symptoms, phlyctenules are common and the status lymphaticus is a most severe form of the condition. Lafon recognizes three groups: (1) Patients already tuberculous when the eye trouble begins. The cause of the eye lesion here is the toxins of the tubercle bacillus. (2) The eye mischief comes on after an infective malady. (3) Patients free from tubercle who appear to be healthy when the phlyctenule came. Morax says phlyctenular disease may be observed in children of the best health in whom all local tubercular infection may be eliminated and to whom we cannot apply the term scrofulous. Lafon thinks these cases, from injudicious feeding, get gastro-intestinal toxins and that the organism in trying to get rid of these provokes the formation of ocular phlyctenules. Of course exogenous causes may be considered, as local external treatment so often suffices and the phlyctenules often appear where external irritation is most likely to be effective. Axenfelt thinks the phlyctenule is the specific reaction of the scrofulous individual to all kinds of infection. Phlyctenules histologically typical may appear in the course of a conjunctivitis due to the pneumococcus, Weeks' bacillus or to the diplobacillus of Morax. The author concludes that we should recognize the existence of an hereditary diathesis which forms a bed rock upon

which infection readily takes place. Faulty hygiene, bad and improper food opens the road still further to infection. The widespread tubercle bacilli is the one most successful and perhaps most suitable to such a soil, which then becomes scrofulous, but other infections can by their toxins give rise to phlyctenules. Hird also has a statistical article on tuberculosis as a cause of phlyctenular disease and its treatment with tuberculin, in which he is a firm believer.

NITRO-PHENOL NEURITIS.

Sollier and Jousset describe neuritic affections in French powder workers under slack hygienic conditions. In three cases extensive neuritis of spinal nerves was present as well as of optic nerves. The characteristics are those of toxic retrobulbar neuritis which may go on to atrophy. This neuritis seems due to nitrophenol bodies in the powders. Prophylactic administration of vasomotor constrictor drugs is suggested. The authors think they can exclude other causes as tobacco, alcohol and tabes and fix on dinitro benzol as the toxic agent.

IRITIS IN DYSENTERY.

Maxwell and Kiep report six cases of anterior uveitis developing in patients infected with *B. dysenteriae* (Shiga). In four of them arthritis occurred also. Other causes of iritis were excluded and the authors conclude: (1) A patient suffering from an infection by *B. dysenteriae* may develop anterior uveitis as a result of the infection, as pointed out by Morax. (2) The ocular affection may or may not be accompanied by articular manifestations. (3) The ocular symptoms would appear to occur most frequently about one month after the first signs of involvement of the bowel, but may occur as early as the twelfth day. (4) The articular syndrome corresponds exactly to that occurring in another affection of a mucous tract, *viz.*, gonorrhea, as pointed out by Garrod. Maxwell has also reported six cases of metastatic conjunctivitis lasting five or six days in this dysentery.

ASTIGMATISM.

Jackson has a statistical study of the changes taking place in astigmatia. In 1,294 eyes out of 648 patients remeasured after periods of from five to seventeen years, 33% showed less than

.25D of change in the amount of astigmatism present and 67% showed at least that much change, while 31% showed .50D or more of change. These latter were more carefully worked out. Astigmatism with the rule includes all cases in which the axis of the convex correcting cylinder was placed within 30° of the vertical or the axis of the concave correcting cylinder was placed within 30° of the horizontal. Astigmatism against the rule includes those in which the axis of the convex cylinder was within 150° and 30° , or the concave between 60° and 120° . A majority of the cases showed change towards astigmatism against the rule, 27% changed towards the rule and 10% remained or became oblique, *viz.*, the axis of the correcting cylinder lay between 30° and 60° on the one hand, or between 120° and 150° on the other. In early life increase of astigmatism with the rule predominates but there is a tendency for this to diminish or for astigmatism against the rule to increase as life goes on. In cases showing a change of one diopter or more, ophthalmometric measurements showed that in one group the anterior surface of the cornea is an important location of the changes that have altered the astigmatism, while in another group the supplementary astigmatism is the cause of the change in the total amount. In general the tendency is for astigmatism to increase with the rule by increase of the corneal astigmatism, and to increase against the rule by increase of the supplementary astigmatism. Astigmatism, though due in some cases to a congenital tendency, develops during life. In some asymmetrical growth of lens is the most logical inference. Jackson concludes that astigmatism is likely to change at any period of life and astigmatism with the rule becomes astigmatism against the rule often as the patient grows older. We should adopt a different nomenclature such as, Direct, with the meridian of greatest curvature approximately vertical; Inverse, with the meridian of greatest curvature approximately horizontal and oblique in the same sense as used above in this article. Astigmatism is congenital chiefly in the sense that a tendency to asymmetrical refraction exists which works itself out at some stage in the development of the person.

PSEUDO-NEOPLASTIC INTERSTITIAL KERATITIS.

Stephenson publishes two cases of this kind of interstitial keratitis which he believes may

be known to others but which has not been described. The cases have occurred in young subjects presenting some of the ordinary stigmata of hereditary syphilis. Once both corneae were affected at the same time and in other cases one eye has had it after the other. The upper or lower part of the cornea in the position of a Hutchinson's salmon patch has been occupied by a prominent fleshy mass resembling a neoplasm. The adjoining cornea next the central part of the edge of the mass has shown interstitial deposits or in more advanced cases the rest of the cornea has exhibited the appearances of interstitial keratitis of marked severity. In time the fleshy looking mass becomes flush with the surface of the cornea and is not followed by local bulging.

These cases are perhaps more tedious but run much the same course as the ordinary ones. When both corneae are affected the diagnosis is easy, for bilateral tumors are rare; but in one eye the mass may be taken for papilloma, sarcoma or other form of new growth, and this especially when the mass forms the first sign of disease. Age of patient, normal and adjacent conjunctiva, evidences of syphilis, and the course of the disease will settle the diagnosis. Detailed description of two cases is given.

PARINAUD'S CONJUNCTIVITIS.

Verhoeff, five years ago, reported finding lepto-therices in eleven cases of Parinaud's conjunctivitis and he now adds six more cases in each of which the characteristic lepto-therices were found in large numbers. The author's report is detailed and important so we quote his description and summary in full. "Leptothricosis conjunctivae is a subacute inflammatory condition of the conjunctiva due to infection with a minute lepto-therix and is always associated with inflammatory enlargement of the preauricular or other regional lymph glands. The source of the infection is unknown. In some cases there is a history of slight trauma to the conjunctiva preceding the infection. The incubation period is from three to seven days. The conjunctival lesions consist of focal areas situated immediately beneath the epithelium infiltrated with endothelial phagocytes in various stages of necrosis. These appear as opaque greyish areas from $\frac{1}{2}$ mm. to 4mm. in diameter, single or multiple, and may appear in any part of the conjunctiva. They contain the lepto-therices in great numbers. More or less gran-

ulation tissue is formed causing the conjunctiva to project in the form of polypoid nodules. Ulceration seldom, if ever, occurs. Often the normal conjunctival lymph follicles are greatly enlarged. Congestion and oedema extend through the whole of the lids. Secretion is slight and muco-purulent in character. The cornea is unaffected. Constitutional symptoms are slight or wanting. The affected glands seldom break down. The disease attacks children and young adults; males are affected more frequently than females, and it is usually unilateral. It is more prevalent in winter and is not transmitted from one individual to another. The best treatment is excision of the grey areas and nodules.

BLUE SCLEROTICS.

The relation between blue sclerotics and fragilitas ossium was reviewed here several years ago, and now new facts have come to light. In addition to a tendency to fractures, dislocations and sprains these patients have been found to have deafness of the oto-sclerotic type. Bronson reports two families. In one 35 members and four generations were examined. There was a tendency (1) to fractures and dislocations, (2) peculiar shape of the head, (3) blue grey sclerotics, (4) deafness, (5) small stature. Twenty-one individuals had the blue sclerotics. The second family in three generations had eight persons, of whom seven had blue sclerotics and tendency to fractures from slight injury and peculiar shape of the head, but no deafness was found in any of these. Van der Hoeve and de Kleijn in fifteen members, of a family of twenty-two, in four generations found eleven cases of blue sclerotics, every one of whom was deaf and ten of them had broken one or more bones. The patients were small, the deafness oto-sclerotic. The ancestors of this pedigree were not relations. These observers report another family with several members showing all these signs. Conlon re-examined the cases he reported in 1913 and found that all who had blue sclerotics were also deaf and the members of the family with normal sclera had normal hearing.

Society Reports.

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE.

CONFERENCE ON "THE REHABILITATION OF THE WOUNDED, HELD AT WITHERSPOON HALL, PHILADELPHIA, SEPTEMBER 20-21, 1918, DR. WILMER KRUSEN, DIRECTOR OF DEPARTMENT OF PUBLIC HEALTH AND CHARITIES, PHILADELPHIA, PRESIDING.

NATURE AND SCOPE OF PROBLEM.

DR. W. W. KEEN, Philadelphia: The fundamental difference between the surgical conditions during the Civil War and the present World War is our ignorance in 1861 and the enormous increase in our knowledge since that date. In chemistry and in physics the chief advances in fifty years have been made by experimental research. In biology and its subdivisions of medicine the same is true. The almost virgin fields of battle during the Civil War held few bacteria, hence, while tetanus was not common, it was deadly, killing nine of every ten victims. In the early days of the present World War it exacted a fearful toll of lives, exact figures of which can be given only after the war is over. As soon as there was a sufficient supply of the tetanus antitoxin for the huge numbers of the wounded the ravages of tetanus were checked, and as a result few now die from lockjaw. Every hour of delay, however, in giving the protective serum means a life lost. In the Civil War compound fractures killed two out of every three, amputations averaged over fifty per cent. mortality. Only 25 per cent. of the cases of compound fractures are now fatal instead of 66 per cent., as in the '60's. Our victory over infection is the reason for the greatly diminished number of amputations now done. Moreover, the mortality of amputations at present is low; in some series every one recovered. The present war is waged in densely infected soil, the wounds are caused by high explosives and there is developed an unprecedented riot of infection utterly unknown prior to 1914. If the wounded can be brought to the surgeon in the few golden hours, two out of three can be saved. Out of 400 cases in Carrel's hospital in which primary healing could not be secured because of delay in reaching surgical aid, only six were failures. This is due

to the researches of Dakin and the work of Carrel. While engineering and chemistry have done very much to develop modern sanitation, bacteriology has been the most important factor in this movement. In 1861 we were wholly ignorant of the fact that the mosquito alone spreads yellow fever and malaria; of the rôle of the fly in typhoid fever; of that of the flea and rat in bubonic plague, and that the louse was responsible for the deadly typhus and the wholly new disease, trench fever. Typhoid has been banished from our army. Surgeon General Gorgas has given me the following figures: "In the entire army, numbering over 1,500,000 men at the end of December, 1917, there have been during the year 242 admissions to hospitals on account of typhoid fever, with 18 deaths. During the corresponding period in 1861, when the Northern army was being mobilized, there were about 9,500 cases of typhoid fever with less than one-quarter of the strength of the present army, with about 1,800 deaths." In the British army 99 per cent. of the soldiers are vaccinated voluntarily. During the past year there was but one death ascribed to antityphoid vaccination in our more than 1,500,000 men. This would seem to be an overwhelming testimony to the value of the method and that making it compulsory was essential to our winning the war. "The road to the heart is only a little over an inch in a direct line," says Professor F. S. Lee, "but it has taken surgery nearly 2,400 years to travel to it. The heart was first laid bare and sewed up for a stab wound 21 years ago (1897). The operation has now been done hundreds of times and has saved the lives of about half of those operated upon. In the present war missiles have been removed from the interior of the heart and even from the large blood vessels. A striking instance of the value of experimental research compared with observational and clinical research is given in our present knowledge concerning the treatment of syphilis. Since 1903 we have learned more and accomplished more for the human race than in the preceding four centuries of intense clinical study. Ehrlich's discovery of a cure for syphilis is one of the most beneficent ever made. Research will never cease to give us better and better methods of coping with disease and death so long as they afflict the human race.

RECLAMATION OF THE MAIMED IN THE INDUSTRIES.

DR. HARRY E. MOCK, Lieutenant Colonel, M. C., U. S. A.: In warfare a number are bound to become disabled, but very few need remain so. A handicap puts more fight in a man and often results in his making good. Michael J. Dowling said, "A man can be worth \$100,000 from his neck up, but \$1.50 a week from his neck down." Being disabled is only a temporary state; being crippled is a permanent state. A man living in Kansas City confined to bed for four years by paralysis had become the owner and superintendent of a large publishing house. Asked to tell how he accomplished such a result, he said, "I am not an invalid; I am a business man." His advice was to keep the mind alert and active, and to make it work for one. The medical department of the army began at the earliest moment to plan for the reclamation of the soldiers, and it is desired to make closer the coöperation between the medical department and the general public in the reconstruction and rehabilitation of the soldiers and sailors. During the past decade a new specialty has been developed in industrial medicine and surgery. In order to prevent waste, deformity and inefficiency many industries have developed a staff of physicians for men in the first-line trenches of the industrial army, and one-tenth of the workers of the nation are receiving the benefits of this work. Too often men injured in the industries are given positions without consideration of their fitness; if trained they could fill gainful positions. The most unfortunate among the injured and disabled in the industries are those not employed by the firm for which they worked. They must be not only cured, but trained for and given suitable positions affording them an income equal to that received before their disability.

REHABILITATION OF THE WOUNDED.

JAMES PHINNEY MUNROE, Vice-Chairman, Federal Board for Vocational Education: We are today in the midst of the greatest waste and the greatest saving of all history. It is not extravagant to believe that the colossal outpourings of wealth which the orgy of war has forced will possibly be redeemed in one generation by the spirit of saving which, with many other hard and salutary lessons, war has taught. The work of the Federal Government

in the rehabilitation of the soldier has its essential complement in the Vocational Rehabilitation Act passed by Congress in June of this year. This Act places upon a Federal Board responsibility for the retraining and placement of injured soldiers and sailors.

Under the Vocational Rehabilitation Act, the Federal Board for Vocational Education, made up, *ex-officio*, of the Secretaries of Agriculture, Commerce and Labor and the Commissioner of Education, and of three other members appointed by the President, is charged with responsibility for the placing back in economic life and, if need be, for the training of every soldier and sailor so far disabled in military service as to have become a beneficiary under the War Risk Insurance Law. So long as that soldier or sailor needs daily hospital care or so long as he is adjudged fit to return to full or limited military service, he is the sole ward, of course, of the medical military authorities; but from the moment that he is discharged from military service, either because his disabilities are such as to preclude further army service, or because he is relieved from such duty by the coming of peace, he becomes automatically a ward of the Federal Board for Vocational Education, and as such ward, has established rights which he alone and by his own free choice can surrender. Having elected to receive training, the Board, together with the War Risk Insurance Bureau, assumes not only his support and that of his dependents, should he have any, during the process of training, but undertakes to follow him up after placement, and to give him reasonable opportunity for further training should the first venture prove ill-suited to his capacities. The jobs which these men undertake will be theirs because they are fitted to take them. In this placement the Board has the specific right under the law to ask the coöperation of the Department of Labor; it has the general right under the debt which we owe to these disabled men to seek the coöperation of every employer in every line of activity. The Government will fulfil its sacred obligation to make these men as efficient as possible physically; also vocationally in the widest possible field of effective economic service.

TRAINING OF THE BLIND IN THE REHABILITATION OF SOLDIERS AND SAILORS.

LIEUTENANT COLONEL JAMES BORDLEY: In no phase of reconstruction are there more difficul-

ties to overcome them in the blind. The public has made up its mind that the blind are industrially useless, forgetting the long list of distinguished blind men, statesmen, musicians, poets, warriors, merchants and inventors. A blind man can perform any operation except where judgment must be based on sight. To translate this definition concretely the Surgeon General of the army, working in conjunction with the Surgeon General of the navy, has established in Baltimore, on a beautiful estate tendered the Government for that purpose by Mrs. T. Harrison Barrett, a hospital training school for the blind sailors, soldiers and marines and Congress has endowed the Federal Board for Vocational Education with money and power to supplement whenever necessary that training and to provide the opportunity for employment. The American Red Cross has caused to be organized the Red Cross Institute for the Blind to supply such economic and social supervision as may be found necessary after the discharge of the blind by the various governmental departments. Vocationally we classify our courses as professional, agricultural, commercial, industrial, housework and blind shop work. Only individual study of the men will enable us to help them decide into which of these classes they must go. We hope to hold to the lowest possible proportion the home and blind shop worker. We have a talented and experienced industrial engineer making an analytic industrial survey to determine the occupations suited to the blind. The significance of the work is reflected in the hearty coöperation of every industry studied. If the blind man fails to make good we shall relieve the employer of all embarrassment by removing the blind man and re-educating him for another trade.

THE RÔLE OF THE AMERICAN RED CROSS IN THE NATIONAL PROGRAM FOR THE REHABILITATION OF THE WOUNDED.

CURTIS B. LUKEMAN, Assistant to the Director General of the Civilian Relief, American Red Cross: Here, as in all its work, the Red Cross will subordinate itself to Government leadership and bend all its enthusiasm and resources to the promotion of the official plans and to the filling of such supplemental needs as may arise. The Red Cross has assumed an obligation of military service reaching to every soldier and sailor and to his dependents whenever they indicate a need that the Red Cross can fill. This

service continues through that indeterminate but critical interval when the man is awaiting the application of the Government's plan to his individual needs. Such endeavor naturally falls to the Department of Civilian Relief of the Red Cross as a phase of home service work and organization. Home service offers the channel through which patriotism and neighborliness combine to assist and protect the dependent wives, children, mothers and other relatives of soldiers and sailors. A classic of the growing home service literature is a brief letter of thanks from a boy whose mother and sister had been visited and helped in some simple way: "I want to thank you all for what you have done; I can soldier better now." Thus the Red Cross has already in operation a special piece of war service machinery peculiarly adapted to assist in the after care of the disabled soldier. Under the Department of Military Relief of the Red Cross there has been conducted also the pioneering research and educational work of the Red Cross Institute for Crippled and Disabled Men in New York, and the more recently established Red Cross Institute for the Blind supplementing the work of the Army Hospital at Baltimore. The home service organization is assisting the military, medical authorities in obtaining essential data as to the previous history of the blind men, in explaining the Government's plan to the family, and selecting the relative who will be taken to Baltimore by the Red Cross Institute and trained side by side with the blinded soldier.

RECONSTRUCTION AND REHABILITATION OF THE RETURNING SOLDIER.

FREDERICK C. HOWE, Commissioner of Immigration at the Port of New York: The problem of reconstruction and the redistribution of millions of men and women in immediate profitable employment on the termination of the war is as colossal a problem as the mobilization of the army. The United States Employment Service is a proper agency for carrying through the work of demobilization. All of the warring countries are emphasizing the necessity of returning the soldier to the land. And in England, Australia and Canada the farm colony is being developed. Experts have submitted that the soldier will not take up an unbroken piece of land isolated from his fellows. Official commissions in England and Australia are developing plans by which the State will sell to the re-

turning soldiers ready-made farms of from three to thirty acres which one man can cultivate. Farms are grouped as a community with educational, recreational and coöperative agencies for marketing and buying. Men are sold farms with a house, barn and sufficient capital on easy terms, the State advancing nine-tenths of the capital, to be repaid on long-term installments. The experience of Australia and Denmark demonstrates the success of this plan. In the United States such colonies should be located in New England, the Southern, Central and Western States, each adjusted to a special kind of farming. Tractors and farm machinery should be owned in common. Such a program involves no permanent burden to the nation. Such comprehensive agricultural program is demanded by the drift of population to the cities, the growth of tenancy, and the exhaustion of the soil.

OPPORTUNITIES FOR EMPLOYMENT.

GERTRUDE R. STEIN, Employment Secretary, Red Cross Institute for Crippled and Disabled Men, New York: The inception of the United States Employment Service has made us all ponder on what an ideal public bureau should be. Employment work needs the help of all the brains in the country at the present moment. In initiating an employment bureau for the handicapped we have the advantage of having the bureau a small one. No organization of this kind is truly valuable unless it is flexible. Employment work does not mean the mere securing of positions, but the securing of the chance to make a livelihood at congenial work with the opportunity to make use of the best powers of the man. In New York we have an effective clearing house which is invaluable in widening the opportunities open to crippled men. A placement bureau for the handicapped must be more efficient than the average bureau or it will not live: it must have a file of satisfied employers who can be called upon when the applicant seems suited for their particular job. It should be capable of securing a position for a teacher as well as for an elevator man, for a draughtsman as well as for a lathe hand. An industrial survey of the opportunities for cripples in the city must be carried on in conjunction with the employment work. The whole system of placement is valueless unless it is properly followed up. Follow-up work in the factories should be discouraged; it is much better to advise the man and have him settle his

industrial difficulties himself. By keeping systematic and full records together with a follow-up system a mass of valuable industrial facts is secured by one of the most economical and effective methods.

T. B. KINDER, Vocational Secretary, Invalided Soldiers' Commission of Canada, now on duty with the Vocational Educational Rehabilitation Division of Washington: The United States goes farther than any other country in its care of its fighting men in that it provides that any man entitled to compensation as a result of his injuries may be provided after his discharge from service with a course of training at the expense of the Government. It is our practice in Canada to study every case individually in the light of every factor with a possible bearing. This plan has been adopted also by the Federal Board at Washington in dealing with American soldiers. One of the most important factors in this connection is the man's educational history. His industrial history is also of great importance. The disabled man must have the will to succeed with his reëducation and successful placement. The man elects his course, but he must be assisted to select wisely and in the light of all the information with which his vocational advisers can provide him. A careful medical examination is made to determine the man's abilities, and medical and technical experts are consulted. In Canada 1,347 men have completed courses of reëducation for new occupations: 1,868 are at present taking courses. Over 2,000 men are taking courses during convalescence. Many of the men receiving active treatment in bed are being trained vocationally. The large majority of men completing courses are in positions as good as were held before their service and many are vastly better off. They are self-supporting, capable members of the community, fulfilling their duties in peace as they did in war. This is one of the big things we are learning from the war, the lesson from which will be carried over into the industrial life. There is now before Congress a bill to provide for vocational rehabilitation for the injured in the industries and their return to employment. Of the men returned to Canada unfit for further military service only about ten per cent. required reëducation for other occupations. An interesting fact also is that, up to June 1 last, out of nearly 30,000 disabled men returned to Canada less than 1,500

has suffered a major amputation. The Commission has proved the value of the occupation for mind and body of the men. It is disciplinary both for the disabled man himself in that it prevents that moral and social deterioration, always the result of prolonged idleness and in the institution itself.

LEW R. PALMER, Acting Commissioner of the State Department of Labor and Industry: Fifty thousand jobs are open and waiting in Pennsylvania for disabled soldiers returning from France. Industrial accidents in this State in two and a half years, ending July 1, have crippled more men than were crippled in the Canadian Army in four years of war. Pennsylvania was the first state in the Union to take steps toward providing employment for the blind and the crippled after the war. Seven months before Congress adopted the rehabilitation act Pennsylvania, through the Department of Labor and Industry, submitted questionnaires to 900 industrial plants to ascertain in what capacity each plant could employ the disabled war veterans. Forty-seven thousand of the 50,000 jobs awaiting the crippled heroes are in industrial work; 900 are clerical; 16 are in agricultural lines, and 1,200 are miscellaneous. The number of amputations due to industrial accidents in the State was 3,798 in two and a half years, while in the four years of war Canada's army had only 1,200 amputations. Eleven hundred and fifty-seven eyes were lost as the result of industrial accidents in the State, while up to last spring only 34 Canadian soldiers had been blinded.

THE EMPLOYMENT OF DISABLED SERVICE MEN.

FREDERICK W. KEOUGH, National Association of Manufacturers: In putting disabled men back into industry there is no room for the spectacular. Our soldiers will go the limit in their military life, and we will go the limit in appreciation and care of the injured. Bringing the physically unfit and disabled men to an irreducible minimum is a national obligation. If disabilities make it inadvisable for a man to follow his former occupation he should be fitted for a new occupation by appropriate training. In the clerical fields are undoubtedly the greatest number of openings. In France blind soldiers have been trained to take dictation on a special machine and to transcribe their notes rapidly and accurately. Among the industries

opened to disabled men are the plate glass, machinery building, boiler-making, printing. In the underwear industry many firms have offered to take disabled men, one firm even offering to employ them up to one-sixth of the operating force. For men who have suffered the loss of their arms, the chemical industry is particularly inviting. The large number of processes which require little manual labor but careful watching make it possible to employ men lacking both arms. One chemical firm in Maryland has offered to take fifteen such men and train them to watch processes. An Ohio chemical firm has made a similar offer. An electrical manufacturer in the United States has discovered that blind men can be employed with great success in winding armatures. Many and varied industrial opportunities have been offered, proving that no industry is entirely closed to these workers. It has been the experience of firms already employing disabled men that they are so keenly appreciative of the opportunity offered that their spirit of willingness more than makes up for their disability. The matter, however, has been most aptly summed up by a New England firm, which says that the crippled workers in its employ are so satisfactory that the writer has often wished he had more such employes.

American Medical Biography.

MUSSER, JOHN HERR (1856-1912).*

JOHN H. MUSSER, eminent clinician, teacher and writer, was born at Strasburg, Lancaster County, Pennsylvania, the twenty-second of June, 1856. He was the son of Dr. Benjamin Musser, the son of Dr. Martin Musser, the son of Dr. Benjamin Musser; his mother was Naomi Musser; thus his forebears back to his great-grandfather were physicians, as was a son, John H., who followed him.

He was educated at the Millersville State Normal School, and the University of Pennsylvania Medical School, where he graduated in 1877. He married Agnes Harper in 1880, by whom he had five children, the three oldest surviving.

He was a resident of the Philadelphia Hospital (Blockley), and then a successful quiz-master and bedside investigator; he soon acquired all the traditions of the older school, as

typified in the then professor of medicine, Alfred Stillé. He was first assistant professor of clinical medicine in the University of Pennsylvania 1889-98; professor of clinical medicine, 1898-1912. He was the director of the department of research in medicine in the University of Pennsylvania, and in 1911 refused the didactic chair of medicine, as his greatest ambition ever lay in clinical lines, and a large consulting practice left no time for the pressing duties of the chair.

He inaugurated and remained the directing head of the Social Service Department of the University of Pennsylvania Hospital.

Musser had both unusual opportunities and a rare gift for making friends, and was constantly active as a member of numerous medical societies, especially in the College of Physicians of Philadelphia, in the Association of American Physicians, and in the American Medical Association, of which he was president in 1903.

He was the author of "Medical Diagnosis" (five editions), of "Practical Treatment," and editor of "Diseases of the Lungs and Pleura" in Nothnagel's Practice, Vol. IV, as well as of a System of Therapeutics with A. O. J. Kelly.

His early and steady progress in diagnostic skill was manifestly due in large measure to his zeal for autopsies in his Blockley days and later. He was pathologist to the Presbyterian Hospital, and a president of the Philadelphia Pathological Society. His clinical work was done at Blockley Hospital, at the Hospital of the University of Pennsylvania, and at the Presbyterian Hospital.

Musser is a fair illustration of the possibilities which lie within the grasp of the average life of a man of good mentality who consistently and persistently turns his energies in one specific direction and says, "This one thing I do, and I am determined to do it well." He thus became by successive degrees a leading consultant in a great metropolis, a well-read scientific physician, an acceptable teacher, and a pathologist to a grade rarely found in the ranks of our general practitioners.

His sterling character and his rare qualities as a friend cannot be portrayed in a brief biography.

Troubled for some years with a weak heart, he died and was cremated after a brief acute illness, the third of April, 1912.

HOWARD A. KELLY, M.D.

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

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INFLUENZA AT CAMP BROOKS.

THE full report of the treatment of influenza at Camp William A. Brooks has now been published by the Commonwealth.

On Sept. 9, 1918, when five nurses and four Red Cross aids responded to the call of the Massachusetts State Guard to care for the sailors of the Merchant Marine, stricken with "Spanish" influenza, patients were already occupying the hastily raised tents on Corey Hill. To meet the necessity of medical treatment for the sick sailors in training on the receiving ships *Meade, Cobb, Dingley*, and *Austin*, the State Adjutant General authorized the Massachusetts State Guard to set up a military hospital on Corey Hill, Brookline, and, under the supervision of Quartermaster General William B. Emery, assisted by Captains Hyde and Lapham, the work was started. To His Excellency Governor McCall and his Councillors is attributed a large part of the initial success of this ven-

ture. Under military authority, supplies and equipment were made ready, and thirty-eight patients had been carried to the hospital by the State Guard Ambulance Corps under Lieutenant Joshua Holden, less than seven hours after the work was begun.

The plan of organization adopted by Major Thomas F. Harrington, medical officer in charge, has been satisfactorily followed in other States, and as members of "The Brooks Teaching Units," these doctors, nurses, and aids have established military hospitals in eight other cities in our Commonwealth. The strict adherence of the members of the hospital personnel to these military orders contributed in very large part to the success of the undertaking. During the six weeks of its activity, the camp received hearty coöperation from the Shipping Board, the Public Safety Committee, from delegates from the Federal Government, and from the Red Cross.

At the first meeting of the Medical Corps, M. S. G., at 8 P.M., Monday, September 9th, Lieut.-Col. William A. Brooks, Acting Chief Surgeon of the State, pointed out that the most serious cases which he had observed among the men on the training ships were those who had suffered from lack of fresh air and sunshine. Many boys taken from parts of the ship where the oxygen was scarce, showed serious effects from impaired breathing and lack of fresh air. Dr. Brooks then explained that his fight against the epidemic was to be first, the prevention of droplet infection to others from those affected with the malady, and second, giving to affected patients the greatest possible amount of nourishment, night and day, and plenty of fresh air, and sunshine when possible. During four days of continuous rain, however, the fresh air treatment was still practised without serious results from exposure. No serum or vaccine was employed at the hospital. The patients ranged in age from young men of seventeen to twenty-four years and the 351 patients treated at the camp from September 9th to October 12th represented the seriously ill among 1200 men infected with the grippe out of a group of more than 5,100 sailors. A total of thirty-six deaths was reported. The length of stay of patients in camp was as follows (September 9 to 30 inclusive):

NUMBER OF DAYS	Dis- CHARGED	DIED
Less than twenty-four hours	—	1
One day	7	4
Two days	17	4
Three days	30	7
Four days	39	3
Five days	19	1
Six days	20	4
Seven days	21	4
Eight days	16	1
Nine days	12	1
Ten days	4	1
Eleven days	3	—
Twelve days	2	1
Thirteen days	—	—
Fourteen days	1	1

Average time in camp per patient, 5.05 days.

Average days in camp of fatal cases, 4.3 days.

Nineteen (57.5 per cent.) of the 33 deaths occurred among patients who had not been in the camp four days. One patient died within six hours of admission and four others died within thirty hours of admission.

The day service was composed of ten physicians and the night service of eight. There were two bacteriologists and a head-nurse with two lieutenants and 45 assistants.

The summary of medication at Camp William A. Brooks is divided into four groups: (1) Preventive, (2) General, (3) Special Medication, (4) Relapses. The first precaution under preventive medication, and the most far-reaching in its results, was the order for the wearing, by all physicians, nurses, orderlies, and others coming in contact with patients, of five layers of gauze on a wire mask over nose and mouth while near patients. Gauze to be changed every two hours and masks sterilized before re-use. Not only was this lesson of prevention learned by all who visited the camp, but it was soon a recognized protection in use by physicians, nurses and attendants at all hospitals as well as in private homes. All other usual precautions against infection were carried out as well. Under General Medication the first order was the outdoor treatment and four-hour feeding. This order, together with the first order under group (1) proved most striking in its beneficial result. Special medication was often found necessary for fever, cough, heart, delirium, kidney irritation, meningitis, or pneumonia treatment, frequent sequelae of the epidemic. Many of the relapses proved to be a development of bronchial pneumonia and were treated accordingly.

So far as has been possible to ascertain, the only persons of this whole group of 174 attendants coming in contact with the infected patients who developed influenza or pneumonia were six

nurses and two orderlies, and in five of these cases exposure outside of the camp could be traced. Every case of influenza received at the camp was considered a possible case of pneumonia until proved otherwise, and as a result of the successful treatment accorded the patients at Camp William A. Brooks, there has been a general adoption throughout the country of the method of protection against infection by the use of the gauze mask and a nation-wide recognition that in combating influenza-pneumonia fresh air and sunshine in open sheds promise the most effective means for a cure.

ORTHOPEDIC CENTRES IN SCOTLAND.

FURTHER interesting reports of the value of orthopedies for the wounded man have come to us from Scotland, where plans for such treatment are carried out in the 1st Scottish General Hospital at Aberdeen and in the Scottish National Red Cross Hospital at Bellahouston. The special hospital block at Old Mills forms the nucleus of the Scottish General Hospital and 500 beds have been set apart for the work. Here under three departments, that of electrotherapy, massage, and plaster work, orthopedies, under the supervision and direction of Professor J. Marnoch, is proving its beneficial results.

The electro-therapeutic department, in charge of Major J. R. Leveck, R.A.M.C., is equipped with galvanic switchboards, special faradic coils with metronome interruptors, earthenware tubs, and a high frequency apparatus which is in constant use. A great many types of cases are treated here and the methods of treatment include graduated faradic contractions, interrupted and continuous galvanism, ionisation, diathermy, high frequency, and muscle testing. Electrical treatment has met with success not only in peripheral nerve injuries and muscle wasting, functional cases, etc., but also in cases of stiff joints, adherent scars and in those cases where re-education of the muscles is deemed necessary.

The massage department, which occupies a similar ward to the electro-therapeutic department, contains specially designed apparatus for exercises which are given under careful supervision.

In the plaster department the following classes of work are performed: (1) Fixation of limbs in plaster; (2) plaster records of limb

before, during, and at conclusion of treatment; (3) casts for splints; (4) plaster splints.

In the curative shops, the men who are able to do so are gradually restoring health and strength to their muscles by such forms of handicraft as boot-repairing, net-making for the Sinclair fracture beds, splint-making, wood carving, photography, etc., while the efforts of the gardener patients, in keeping the grounds in order, afford recreation as well.

The number of treatments given during December, 1917, January and February, 1918, is shown below:

	MASSAGE	ELECTRICAL	RADIANT HEAT
Dec., 1917, 4 weeks ...	1818	1124	164
Feb., 1918, 4 weeks ...	2404	1419	145
Jan., 1918, 5 weeks ...	2798	1585	271
Totals	7020	4128	580

The plans for further extension of the hospital buildings have been put into execution entirely through funds provided by the Scottish Branch of the Red Cross Society.

Much the same ideas are carried out in the Scottish National Red Cross Hospital at Bellahouston, Glasgow, which is under the command of Lt.-Col. H. Chaffer, R.A.M.C. Here the orthopedic division is under the direction and supervision of Prof. R. Kennedy, and his assistants. The physical treatment is divided into four groups: (1) Hydrotherapy, which is carried out by the use of baths. Local or general, sedative or tonic baths are provided and a large circular pool adaptable for either calm, soothing effect or rapid, turbine motion of stimulation, may be used by 10 or 12 patients at once. (2) Mechanotherapy as a means of restoration of muscles and joints or as a strengthening measure, is carried on by massage, either mechanical or manual. Carefully planned exercise and massage under competent masseurs is given; and (3) Electrotherapy for the stimulation of nerves as well as (4) Radiotherapy for the same purpose are administered through different electrical apparatus.

In the curative workshops of these orthopedic centres, hastening of improvement is of prime importance. However, in a great many instances the latent aptitude of a man for some particular trade has shown itself here in the shops and thus it is that he is oftentimes better fitted to take up a particular kind of work on his return to civil life.

Such institutions as the Scottish National Red Cross Hospital and the Scottish General Hospital have risen to extreme military importance during the recent emergency. Men who have been cured by such treatment help to conserve the fighting power by their return to the line, and men who cannot fight again, cease to become objects of sympathy and are able to take their place as useful workers in civil life. Thus the original idea of treatment of crippled children has formed a nucleus of enormous possibilities for re-education and usefulness of the disabled man.

UNDERSTANDING THE CRIMINAL IN THE PSYCHOPATHIC LABORATORY OF THE MUNICIPAL COURT OF CHICAGO.

DR. WILLIAM J. HICKSON, director of the psychopathic laboratory of the Municipal Court of Chicago, has recently presented to the Court a report of the work of his department for the period May 1, 1914, to April 30, 1917. In these first three years of its work there were examined 4,468 cases, contributions from the Boys' Court, the Court of Domestic Relations, the Morals Court, and other criminal branches. An effort to get at the cause and remedies, if possible, to find the answer to the question, "Why is a man a criminal?" has been the prime object of the laboratory, and to this end Dr. Hickson and his assistants have sought to root out the evil instead of trying to treat the disease. For the student of law and of medicine as well, the activities of the psychopathic laboratory afford much interesting material. The line of treatment is both mental and physical and an undertaking of this kind opens a wide field to the psychopathic expert. Since the judge is not always able to ascertain just what led to the commission of a crime, the laboratory method of psychological, neurological and psychiatric tests classifies in a short time the diagnosis and gives an idea of what the prognosis of criminal tendency may be in a particular case. With the advance of civilization the problem of crime is coming to be understood as the problem of mental defectiveness and instead of believing a criminal to be "possessed of an evil spirit," the laboratory methods of proved tests have demonstrated through medical science that he is really a subject of abnormal mentality.

Dr. Hickson has enumerated in his report a large number of actual case histories and has shown that through the laboratory pass victims of drugs, of heart disease, of tuberculosis, etc., and lays stress on the type of criminal who is the victim of dementia praecox. The biggest element, however, which is considered in Dr. Hickson's report of his work is that, especially among juveniles, psychopathology will be of an assistance to the court and not a hindrance. The laboratory method does not aim to save the delinquent from punishment by reason of his delinquency, but is a means of diagnosing a potential criminal before any serious offense has been committed.

YEAST AS A THERAPEUTIC AGENT.

IN the issues of the JOURNAL, under dates of August 18 and 22, 1918, there were discussed the subjects of "Vitamine Content of Cereal Foods" and "Vitamine and Nutrition." Within the last few months there has been considerable interest in the subject of the therapeutic uses of yeast and recently further demonstrations of its use in the treatment of furunculosis or acne rosacea and acne vulgaris have been called to our attention. In general, it is pointed out in these recent notices, that yeast, although used in medicine since the days of Hippocrates, was not looked upon favorably by the medical profession until the middle of the nineteenth century.

Since the main value of yeast lies in its vitamine content and since vitamins are indispensable in the diet, it naturally follows that the addition of yeast to the diet in certain pathological conditions might be of benefit. However, to accept the general use of the familiar baker's yeast as a treatment for pathological skin conditions, opens up a question for wide discussion. Hawk and collaborators have much to say of the value of compressed yeast in diseases of the skin and of the gastro-intestinal tract, and numerous investigators before Hawk have testified to its efficacy. Much stress is laid on a proper diet in the prophylaxis and treatment of various skin diseases in the articles referred to, and a great deal of the success in cases of skin disease have been attributed to the use of yeast in the diet. However, as treatment for these conditions must

be both constitutional and local, it is particularly desirable that a circumspect attitude be still retained as to the widely-proclaimed therapeutic properties of yeast.

MEDICAL NOTES.

TOTAL NUMBER OF DEATHS DUE TO INFLUENZA IN THE UNITED STATES.—Between 300,000 and 350,000 deaths from influenza and pneumonia have occurred among the civilian population of the United States since September 15, according to estimates of the public health service based on reports from cities and states keeping accurate records. Public health officials believe that this figure is conservative. The epidemic still persists, but the reappearance of the disease in many communities probably does not indicate a general renewal of severe epidemic conditions.

About 20,000 deaths in the camps in the United States have been due to influenza.

CANCER CONTROL.—The October issue of *Campaign Notes*, a pamphlet published by the American Society for the Control of Cancer, describes the cancer disease, reveals its prevalence, and emphasizes the necessity of combating it in its early stages. In order to promote publicity work in Massachusetts, it has been suggested that the newspapers publish the following facts:

"Of civilized people over 40 years of age one in every 14 men dies of cancer and one in every eight women. These figures are the careful computation of the life insurance companies.

"Cancer attacks more men and women over 40 than does tuberculosis, pneumonia, typhoid fever or any chronic disease. About 80,000 deaths annually in the United States are due to cancer.

"The majority of cases of cancer in the early stages are curable. The bulk of all cancers are in positions that permit of successful operation.

"After 40 it is highly unsafe to neglect persistent ulcerations, cracks in the skin, sores, lumps in the breast, or chronic indigestion with loss of weight and change of color.

"Birthmarks, moles or warts which change their appearance or show signs of irritation

should be regarded with suspicion and should be examined by a competent surgeon.

"Medicine is worse than useless: By producing a period of freedom from discomfort it delays the proper treatment. Medical cancer cures are all bogus. Barring the use of radium or similar means for the small affairs of the skin, surgical operation is the only cure for cancer.

"In the earliest stages of the 'precancerous' conditions the operation for cancer of the breast usually requires an incision only an inch or two long, necessitates carrying an arm in a sling for a few days, brings about only a trifling expense and causes no deformity.

"Women must learn not to wait for pain to become prominent but to seek competent advice regarding mysterious symptoms. Pain indicates that the sufferer is late in action but not necessarily too late.

"Heredity is a factor of small importance in discussing cancer and the possibility of transferring cancer from one person to another may be practically disregarded."

INFLUENZA IN PORTO RICO AND NEW ZEALAND.—On November 30, Governor Yagar, acting on the report of the Porto Rican commissioner of health, ordered all schools, churches, and theatres to be closed and a ban was placed on public gatherings because of the influenza epidemic.

The labor federation has requested federal aid and has asked the United States Public Health Service be placed in charge of it. Secretary of War Baker announced that the surgeon-general and the public health service would cooperate with the insular authorities. A shortage of doctors, nurses, medicines and food in many localities has been reported to such a degree that it cannot be relieved by the Red Cross.

In New Zealand, especially among the natives, the epidemic is still spreading. Hotels and breweries are closed and the newspapers are asked not to publish the mortality returns. The Government has sanctioned the discretionary closing of banks, owing to their depleted staffs.

WAR NOTES.

INFLUENZA LOSSES AT SEA.—It has been unofficially reported that 3500 soldiers, stricken with influenza while being convoyed across the Atlantic, have been buried at sea.

HOME ARMY HEALTH IMPROVED.—General improvement in the health of soldiers in home army training camps and cantonments is shown by the report of the Surgeon-General for the week ending November 22. New cases of influenza numbered 3396, compared with 4485 the week before, and there were decreases in admissions for other diseases. Deaths were at the rate of 13.7 per thousand per year, compared with 19.7 the previous week.

The death rate from disease among soldiers of the army in France for the week ending November 15 was 12.9 per thousand per year.

AMERICAN RED CROSS NEED OF NURSES.—The American Red Cross will need the cooperation of nurses in carrying out peace activities. The rebuilding of the health and morale of the invaded countries of Europe will require the services of many physicians and nurses. Tuberculosis, typhus, and influenza are prevalent, and malnutrition, exposure, and exhaustion present serious problems. There will be opportunities for American nurses to help in this reconstruction work.

In this country, the town and country nursing service will be developed to the utmost under the direction of the Red Cross. Releasing nearly twenty thousand graduate nurses from military service will enable the Red Cross to engage in various lines of social welfare work.

WOUNDED MEN TO BE NEAR THEIR HOMES.—Plans by which all wounded men returning from France will go to hospitals within three hundred miles of the homes of their nearest relatives have been announced by the War Department. Base hospitals at training camps have been turned over to the Surgeon-General, providing seventy-five hospitals with facilities to care for 104,231 men. Fifty thousand men are expected to be sent to these institutions within the next four months.

The seventy-five hospitals do not include those at the ports of debarkation, New York and Newport News. There the wounded will be received on arrival from France in fifteen institutions now ready for them with a bed capacity of 22,068. From the ports the men will be taken on specially fitted trains to one of sixteen localized hospital groups, where assignments will be made in such a way that each wounded man will go back to the region from which he entered the service.

Group No. 1 comprises general hospitals at Boston, New Haven, East Norfolk, Mass.; Plattsburg barracks and the base hospital at Camp Devens.

HEALTH CONDITIONS SHOW IMPROVEMENT AT CAMPS.—Improvement in the health of soldiers in home army training camps and cantonments is shown by the report of the Surgeon-General for the week ending November 22.

New cases of influenza numbered 3,396, compared with 4,485 the week before, and there were decreases in admissions for other diseases. Deaths were at the rate of 13.7 per thousand per year, compared with 19.7 last week.

The death rate from disease among soldiers of the Army in France for the week ending November 15 was 12.9 per thousand per year.

PROMOTION OF OFFICERS IN ARMY MEDICAL CORPS.—Colonel Walter D. McCaw and Major General Robert E. Noble of the National Army have been promoted to the rank of Brigadier-Generals in the Regular Army Medical Corps.

EFFECT OF WAR IN BERLIN.—The vital statistics of Berlin are now available. They disclose the almost catastrophic effect of the war's privations on the people.

The excess of births over deaths in 1913 was 12,766. In 1916 there was an excess of deaths over births of 4,440, and there were 15,397 more deaths than births in 1917. These figures do not include the soldiers who died at the front or in hospitals. The total number of deaths in 1917 was 7,000 more than the previous year, despite the fact that Berlin's population has decreased 70,000.

BOSTON AND MASSACHUSETTS.

STREET CARS IN BAD SANITARY CONDITION.—Investigation of the Boston Elevated surface cars on the Dorchester Avenue, South Boston and Upham's Corner lines has revealed unsanitary conditions. At the request of Mayor Peters, three Health Department inspectors made examinations at various times. Of one hundred and eighty-five cars inspected, the report shows that only five of these—less than three per cent.—were found in sanitary condition. It was discovered that in the majority of cases, nothing was done to clean the cars at night, and they were sent out in the morning in the same condition in which they had been put away.

Miscellany.

IN MEMORIAM

THOMAS FRANCIS LEEN.

THOMAS FRANCIS LEEN was for five years Physician and for six years Physician-in-Chief to the Carney Hospital.

By his cheerfulness of spirit and sympathetic care he endeared himself to the many sick who came to him for help. He was abundantly charitable in word and deed; keenly sensible of the higher values of humanity; thoughtful of points of view not his own; skilled in the art of medicine and abreast with the progress of its science; kindly and esteemed as a teacher; unselfish in his devotion, to the end, so that his life was given in sacrifice for others.

It is with a sense of deep personal as well as professional loss that the Staff of the Carney Hospital formally records his death on September 17, 1918.

Minute of Meeting of Staff of Carney Hospital, October 31, 1918.

NOTICE TO DISTRICT SOCIETIES OF THE MASSACHUSETTS MEDICAL SOCIETY.

The Public Health Committee of the Massachusetts Medical Society, with a view to increasing the benefits to be derived from membership in the society, and helping the busy practitioner to keep in touch with current matters of practical interest to the profession and pertaining to their daily work, has obtained the consent of the following named gentlemen to speak at meetings of District Societies during the year, in so far as requests may be made and other engagements permit arrangements for designated dates: Professor Wm. T. Sedgwick, Dr. Walter E. Fernald, Dr. C. Morton Smith, Dr. John Bapst Blake, Dr. Edwin H. Place, Dr. M. Victor Safford, Dr. William C. Woodward, Dr. Timothy Leary, Dr. Jose P. Bill, Dr. George H. Wright; and possibly a representative of the Rockefeller Institute, N. Y.

The object of these talks is the promotion of public health and increase of knowledge of practical details of daily interest in life of physicians in general practice.

In furtherance of the purpose which the Committee had in view, these gentlemen have offered their services without expense to the members of the Society and are willing to give time for discussion and questions.

Secretaries of District Societies desiring to arrange speakers from this list should communicate with the Secretary of the Committee, Dr. Annie Lee Hamilton, 141 Newbury Street Boston, Mass.

RECENT DEATHS.

DR. FRANCIS L. LANE died recently at his home in Lynn at the age of fifty-two years. Dr. Lane was a graduate of the Harvard Medical School in the class of 1892. For four years he was quarantine officer at the port of Boston and later was in charge of the medical department at Deer Island. He had been a member of the Lynn Board of Health.

The Boston Medical and Surgical Journal

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INFLUENZA AMONG CHILDREN AS SEEN IN A HOSPITAL WARD.

BY FRITZ B. TALBOT, M.D., BOSTON.

[From the Children's Medical Service, Massachusetts General Hospital.]

INCIDENCE AMONG CHILDREN.

THE influenza epidemic of 1889-1890 affected children as well as adults, but because it spared the breast-fed babies, some of the earlier writers thought all children were immune. The most susceptible were the children of school age and adolescence. These facts are borne out by European statistics, of which the following is an example¹: The percentage of children in 47,000 cases treated by physicians in Bavaria in 1889-1890, were as follows:

AGE

One year	1.5%
Two to five years.....	5.4%
Six to ten years.....	6.6%
Eleven to fifteen years.....	7.2%
Over fifteen years.....	79.3%

The incidence of influenza among children in the present epidemic can be known only when complete medical returns are made to the boards of health. One factor which undoubtedly re-

duced the incidence among children in the present epidemic was the prompt closing of schools. The action of the authorities in so doing cannot be too highly commended.

The symptoms and course of the disease in older children were similar to those of the adult. The younger children tended to have less typical symptoms, and during infancy the picture was at times so atypical that the diagnosis would not have been suspected were it not known that other members of the family were sick with the disease. Fortunately, with the exception of the new-born, and premature infant, the nursing infant rarely, if ever, contracts the disease.

The three types of disease spoken of in the earlier epidemics are the catarrhal, gastro-intestinal, and nervous types. As will be seen later, nearly all the cases in the present series fall into the catarrhal or pulmonary type, while only in rare instances are there gastro-intestinal complications, and in no instance symptoms referable to the central nervous system which could not be explained by fever. The gastro-intestinal symptoms appear to be more common in infancy than during childhood. This would agree with the experiences of the earlier epidemic.

The thirty-one cases in this series were studied in the Children's Ward of the Massachusetts

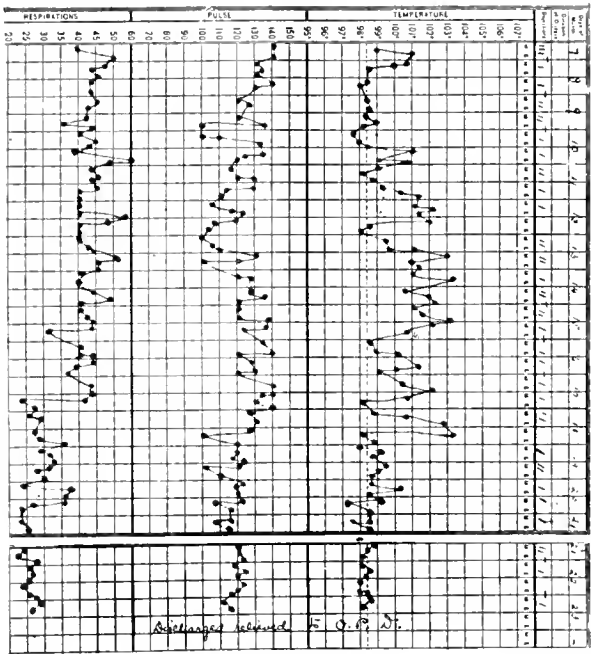


CHART 1.

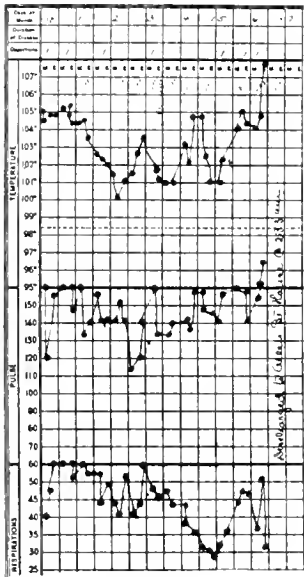


CHART 2.

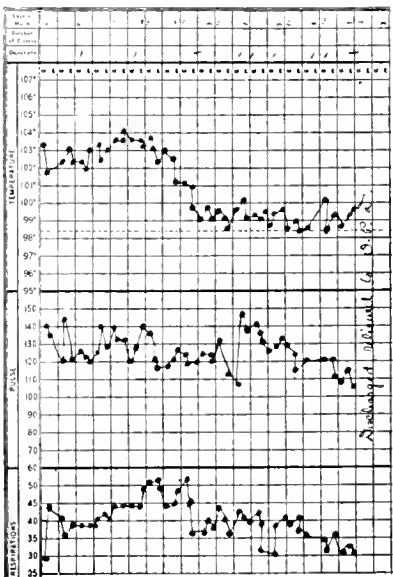


CHART 3.

General Hospital. The first case entered September 12th, five days after the entrance of adults to this and other hospitals. Ten of our cases were under two years of age, and none were breast-fed except an infant eleven days old. Ten were in the second and third year, and the rest ranged up to twelve years. The greatest number of admissions for any one day was four on October 7th. The majority of these cases, we found, had been sick from four days to one week before their admission to the Hos-

pital, and, with a few exceptions, represented the severest form of the disease. This report, therefore, cannot be said to represent the epidemic as a whole, but merely the sickest type of hospital case. In many instances the disease commenced with sneezing and profuse watery discharge from the nose. The infection then spread down the respiratory tract, and coughing became a constant and distressing symptom, being present in all cases. Contrary to the experience in

adults, there was no clinical evidence of sinus infection among the children, and otitis media was present only in four cases. There was only slight temporary reddening of the ear drum, which subsided in twenty-four to forty-eight hours without the formation of pus, in the remaining cases. In one instance the infection of the middle ear extended to the mastoid, but quieted down before operative interference was necessary. The incidence of sore throats was also less prevalent among the children than adults, and on inspection, the throat showed surprisingly little evidence of inflammation, being rarely more than slightly reddened. This may be due to the fact that the cases were not seen in the first days of the disease. There was definite enlargement of the glands of the neck in only two cases; in neither was operative interference necessary. The complaint of headache was markedly less in children, being present in only one-sixth of the cases. Fever was present in all cases, and at times was as high as 106F. (see chart). The height of the fever, however, did not necessarily give evidence of the severity of the disease. During the first weeks of the epidemic it was noticeable that children who were cyanotic early in the disease, in nearly all cases died. When cyanosis was absent the prognosis was usually favorable.

On physical examination there was a surprising uniformity of findings. The heart in all instances was normal to percussion and auscultation, except shortly before death. The liver and spleen were not enlarged in any instance, as a result of the disease. Conjunctivitis was present in a few instances during the catarrhal stage of the disease, but was not seen after four days, at which time it was not sufficiently pronounced or frequent enough to remind one of the prodromal symptoms of measles.

Involvement of the lung was present in all the cases studied, except one twelve year old girl, the remainder of the cases showing definite consolidation by auscultation and percussion and by x-ray. In one instance the writer was unable to determine any evidence whatsoever of consolidation after careful examination, but the x-ray showed a definite solid area in the left upper lobe. Even after comparing the x-ray findings with the child, it was impossible to demonstrate any clinical evidence of consolidation. This is not an isolated experience, but apparently was characteristic of the epidemic. Furthermore, all

sick cases of influenza seen in the hospital showed other patches of consolidation than those that could be demonstrated clinically. It is our belief, therefore, that all severe cases in this epidemic were complicated with broncho-pneumonia whether clinical signs were present or not. The clinical signs are often those of a diffuse or capillary bronchitis, without consolidation. The x-ray in these instances showed a diffuse mottling of the lung. In twelve cases the left lower lobe was the first to become involved, this usually extending to other parts of the same side of the chest or to the right side; in eight cases, both bases showed signs of consolidation when the patient was first seen. It may be said, roughly, that the greater the extent of the solidification, the less likely was the patient to recover. There was rarely lobar pneumonia. Pathologically, there was always a broncho-pneumonia. In two of the cases, which came to necropsy, there was no evidence of emphysema of the lungs. Two cases of this series had empyema; one was operated on successfully, and the other died.

The kidneys showed little or no evidence of trouble other than what might be expected with any severe infection. In six cases the urinary sediment showed a few leucocytes, but not enough to be considered of pathological importance, and in one they were in sufficient numbers to warrant the diagnosis of pyelitis. Two cases showed only microscopic blood, and twice there was a large trace of albumen. Considering the severity of the disease, the kidneys showed surprisingly little evidence of disease.

The examination of the blood confirms the findings of earlier observers. The white count, irrespective of prognosis, and complications, was low, in the majority of cases. It was 10,000 or under in five cases; between 10,000 and 15,000 in thirteen cases, and above 15,000 in five instances, the highest being 34,000. The differential count from the blood smear showed a polymuclear leucocytosis in all cases but one, an infant of five months which had only 40% polymuclear cells.

In a few instances, shortly before death, the deep sighing respiration made it seem probable that acidosis was present, but the carbon-dioxide tension of the alveolar air could not be determined because of the serious condition of the patient. Acetone was present in the urine in two cases. Usually during other acute respira-

tory infections in the winter, acetone is present in 90% of the cases.

PROGNOSIS.

In considering the prognosis, it must be remembered that only the sickest cases came to the hospital. The prognosis in mild, uncomplicated cases was favorable. Thirteen, or 42% of the cases in this series died. This was not far from the figures observed in adults in many hospitals. When cyanosis was present the prognosis was unfavorable, especially if present in the early stages of the disease. It is probable from the experience in this and previous epidemics that breast-fed infants do not often contract the disease.

AFTER-RESULTS.

An additional series of twenty-seven cases, which had been treated at home were brought to the Out-Patient Department for examination one to three weeks after they had recovered from the disease. They were examined with special reference to complications and after-results. Seventeen were perfectly well, one of them was well known to the clinic, being under treatment for acute endocarditis. So far as could be determined no damage had been done to the heart after recovering from one week's illness in bed. One child developed a systolic murmur without any evidence of endocarditis and in a third a quiescent endocarditis flared up during the disease. In four cases a cough persisted for three weeks without any physical signs. This apparently is characteristic of the experience in adults. There was evidence of trouble in the naso-pharynx and the adjacent organs following the influenza infection except in five children (tonsils 1, adenoids 1, otitis media 2, mastoid, which had been drained, 1). Up to date it has not been found that tuberculosis was the after-result of this disease, but it will be necessary to study a much larger group of children over a longer period of time, to determine this point. It has been said that influenza holds a place with measles and pertussis in predisposing a child to tuberculosis. The immediate after-results of influenza in this epidemic were similar to those of any acute respiratory infection and were not characteristic.

TREATMENT.

The treatment of the disease is symptomatic. Careful and individual nursing is the most important single element of treatment. Crowding should be avoided. Better results are obtained in the home with individual nursing, than in a hospital, no matter how good, where there is unavoidable crowding, and one nurse has to care for several patients. There should be plenty of fresh air. The children that were out on the covered porch of the hospital seemed to do better than those indoors. They should be given as much food as the digestion can stand, and plenty of liquid. This, however, will not be done, unless a liquid chart is kept. The minimum amount of liquid to be given is the amount which the child takes during health. With this fixed minimum, 50% more should be added, and the physician should insist that the child receive it as long as the stomach does not rebel. The liquid dilutes and carries away the toxins through the kidneys. During high fever much more food is being burnt up than in health, and since the first food component to be burned up is carbohydrate, plenty of carbohydrate should be given in the food to replace that which is burnt up in the body. If this is done there will always be enough sugar in the blood to prevent the formation of acetone bodies and acidosis. If sufficient liquid is given there will probably be no abdominal distention. Distention should be treated with cathartics, enemas and stupes. Stimulation may be given when indicated, but in my experience, it does not modify the eventual outcome. Normal salt solution given subcutaneously when the body is obviously not receiving enough fluid, however, often acts as a powerful stimulant, and is an exception to this rule. It may be given intravenously in older children, and into the lateral sinus in young infants. When either of these procedures is necessary, 5% pure glucose may be added to the normal salt solution, with excellent results. The glucose probably acts only as a food and not as a stimulant. Theoretically it is of the most value when the child has taken none or insufficient food for twenty-four to forty-eight hours.

REFERENCE.

¹ Pfandler and Schlossmann: *Dis. Children*, English Edition, 451.

INFLUENZA AMONG CHILDREN AS SEEN IN PRIVATE PRACTICE.

BY ARTHUR A. HOWARD, M.D., BOSTON.

IN the influenza epidemic prevalent in Boston during September, October, and November, 1918, the clinical picture presented by the children seen in private practice differed materially and gave a far different impression from that obtained in the isolation wards at the hospital. Influenza infection among children seen at the hospital appeared much like the adult type of the disease and developed a high mortality. Children seen in private practice were, in general, much less ill, did not resemble as closely the adult type and the mortality rate was much more favorable.

It is the object of this paper based on the study of 70 consecutive cases to present the typical clinical picture and some of the chief features that characterized the average private case. The story and uniform picture presented, that varied only in degree, was as follows: The child was taken suddenly ill with a high fever—usually with initial headache and vomiting, moderate prostration and a hacking irritating cough. The first impression gained on looking at the child was that it seemed less ill than the temperature indicated. The distinctive clinical features were: The cheeks flushed a deeper more erythematous red than the usual fever flush; there was also a greater or less degree of cyanosis of lips and skin. The eyes appeared more red and irritated than with an ordinary cold or fever; the injection of the vessels of the cornea, simulating that seen in measles. The child was dull but restless, from simply tossing about to active delirium. The breathing was only moderately rapid and not labored even when considerable pneumonia was present. The temperature was usually high, most often 104 to 105, even in cases with but scanty physical findings. The throat was injected a dull red color but, as a rule, did not look as severe a sore throat as the temperature indicated. The mucous membranes of the throat were unusually clean as regards exudate or patches even in cases where the membranes were so engorged that coughing caused bleeding. The cervical glands were usually moderately enlarged. The dry hacking cough was a very noticeable feature of cases both with and without pneumonia complications. Acetone odor to the breath was noticeable in a high percentage of cases. The acetoneuria did not, how-

ever, seem severe and added but slightly to the child's dullness and prostration. Other findings were conspicuous by their absence.

This description briefly indicates the picture presented in a great majority of cases. The unusual ease, the child dangerously ill, had a pasty pale appearance even when the temperature was high. Or occasionally had a flushed appearance but the flush was a markedly deep red from cyanosis and the child was very dull, stuporous or delirious.

INSPECTION SINGULARLY EFFECTIVE AND CORRECT IN SIZING UP PHYSICAL CONDITION AND PROGNOSIS.

After seeing a few of these cases, one could not help but be impressed by the value and accuracy of his inspection in contrast to the results obtained from a careful physical examination. If, on inspection, the child did not appear ill, although the temperature might be 105 or more, physical examination not only failed to reveal any complicating pneumonia but almost invariably the child did not develop pneumonia later and would be much improved, with a marked drop in temperature, even to normal, in twenty-four to forty-eight hours; or, if pneumonia was present, but few patches appeared and quickly resolved. If, on the other hand the child looked ill, regardless of whether the temperature was 102 or 105, the child would invariably prove to have pneumonia or develop signs of pneumonia in a few hours. The practical importance of the inspection in both instances lay in the fact that it was more reliable than the results of careful physical examination and, if heeded, safeguarded errors in diagnosis and prognosis that would have occurred had only the results of auscultation and percussion been considered.

COMMON CLINICAL FEATURES.

1. Symptoms.

- a. Headache was complained of even by the younger children. This seemed to be an almost constant source of real discomfort in every case old enough to express this symptom.
- b. The eyes also, apparently, ached and caused considerable discomfort not only among those old enough to describe their feelings but also among the young children, as judged from their actions.

- c. Cough was a most constant and irritating symptom in the majority of cases. It was of a dry, hacking character simulating a measles cough. The cough did not suggest pertussis except in cases having pertussis or having recently recovered from whooping cough.
- d. Nosebleed and bleeding from the throat frequently occurred. The bleeding from the throat was limited to small amounts of bright blood expectorated on coughing or, in some cases where the membranes of the throat were engorged, forcible depressing of the tongue and the resulting spasmodic gagging caused slight bleeding. The nosebleeds, although fairly common occurrences in these cases of marked injection of the mucous membranes, were not usually severe and required no treatment.
- e. Not a single child complained of earache. Only two cases, both of which were among those too young or too ill to mention earache, developed any ear complications. In both of these cases, it was a simple otitis media. There were no cases of mastoid or sinus involvement. Absence of middle ear complications was especially striking in view of the marked involvement by the infection of the upper respiratory tract.
- f. Digestive disturbance though often present was not as a rule, severe. Vomiting was usually limited to once or twice. Where the vomiting was more persistent, treatment of the acidosis eliminated this trouble. Intestinal indigestion was more frequently met with in the younger children than in those who were older. As a rule this disturbance was no greater than would be expected with the temperature, and in no case, proved a very troublesome feature.

Pain in children old enough to localize their trouble was occasionally complained of in the muscles of the legs and arms. It was not, however, apparently, as severe as in adults. Delirium was present in the first 24 hours in a majority of cases averagely ill. This feature did not last as long and was not as severe or troublesome in children as in adults; this was especially true in young children. In very few cases was the delirium active enough to require sedatives or any treatment other than cool sponges.

A summary of the symptoms in the order of the frequency of occurrence follows:

TABLE I.
(Number of cases, 70.)

SYMPTOMS	PRESENT
Cough	70
Headache (34 too young to state; 2 no ache) ..	34
Acetone breath	55
Vomiting	41
Nosebleed	17
Diarrhea	14
Earache	2?

2. Physical Findings.

Cyanosis of the type described in the typical clinical picture was almost universally present to a greater or less degree.

Eyes showed injection of the mucous membranes of the lids and of the vessels of the cornea.

Throat in the majority of cases showed only slight redness and practically never any exudate or patches. Such cases having a higher temperature than would be expected from the appearance of the throat. In the more severe cases the mucous membranes of the nose and throat were markedly injected and were of a dark cyanotic appearance. Such cases often showed sufficient engorgement to cause bleeding on very slight provocation.

The Cervical Glands were moderately enlarged in nearly every case. Even in the severe cases of this series, however, there was not a single instance in which the glands became reddened or broke down.

Ears. Only two cases developed any ear complications. They were both simple otitis media and were very mild in character.

Mastoid and Sinuses. No evidence of mastoid or sinus involvement was found in any case.

Heart. There were no cases of pericarditis, endocarditis or valvular involvement. In cases in which pneumonia was severe and the child was markedly prostrated and toxic, there were evidences of dilatation of the heart but even these failed to display the typical signs of myocarditis.

Abdomen. The liver and spleen did not show any distinctive features. No cases developed peritonitis or abdominal complications. Distention was present in many cases, troublesome in a few, but was a no more marked feature than might be expected with the high fever and resulting digestive disturbance.

Kidneys. The examination of the urine was not carried out as a routine. In the cases examined, the findings were only such as might be expected on account of the fever and upset metabolism. No cases developed definite nephritis or pyelitis.

Central Nervous System. Although many cases were delirious and there was a suggestion of encephalitic irritation in a few, no cases developed an active encephalitis and there were no meningitis complications.

Lungs. Nearly every case that was at all severe in character showed either a marked bronchitis or a pneumonia. Bronchitis, more or less marked was present in all 45 cases not showing pneumonia; 25 of the 70 cases developed pneumonia. The type of the pneumonia was universally broncho-pneumonia.

The location of the lesions seemed to be nearly uniformly distributed between the two lungs with greater involvement of the middle and lower lobes. The pneumonias were characterized in general by scanty physical signs. The patches were usually small; individual areas, as a rule, cleared quickly. In cases where the disease was prolonged, this was due to continued development of new areas of consolidation. Most cases in which the physical findings justified a diagnosis of fairly extensive bronchitis, but did not justify a diagnosis of pneumonia, subsequently proved to be pneumonia. Usually such cases had only small patches of consolidation but few subsequent areas developed and the duration of the disease was short.

COMPLICATIONS.

The only common complication of the influenza infection, if so constant a physical finding can be called a complication and not a part of the disease, was the bronchitis and broncho-pneumonia. Acetonuria was the only other frequent complication and that, as already described, was usually mild in character.

The pneumonia was singularly free from complications. Of the 70 cases considered, there was not a single case of empyema and only one of unresolved pneumonia. This case, after one and a half months is now clearing up.

As might be expected, children having pertussis or being debilitated as the result of whoop-

ing cough ran a more difficult course than other children. The temperature might not run any higher but the children seemed more prone to develop repeated patches of broncho-pneumonia which resolved more slowly and prolonged the duration of the disease.

PROGNOSIS.

MORTALITY (PRIVATE PRACTICE.)

NO. OF CASES	NO. OF DEATHS
70	1

In general the children seen in private practice were less ill as regards life than their temperature indicated. The broncho-pneumonia, having rapidly clearing areas and clearing up rather rapidly, ran a less protracted course and produced less loss of weight and caused less general debility than would be the case in the average broncho-pneumonia. For the same reasons, the mortality was favorable over ordinary broncho-pneumonia. In the severe and fatal cases, the clinical picture simulated the adult type of the disease much more closely, regardless of the age of the child. The fatal cases being pale rather than flushed even when the temperature was high. There was more cyanosis, so that the child had a pasty blue appearance, or if flushed, the flush was extremely dark red in color and the child was markedly prostrated.

Although some cases seemed more susceptible and less resistant from the start than others, in general, fatal results seemed more influenced by failure to get early or proper treatment. Cases which had been kept in rooms with windows closed and no attempt to keep bowels well open, were the ones seen with pale pasty appearance and fatal outcome. Such cases responded poorly to fresh air, purging, and all treatment, when such treatment was started at a late stage of the disease. This may well largely account for the different appearance and poor response to treatment in cases seen at hospitals and in consultation. My own consultation figures as contrasted with the results in private cases are suggestive in this connection, being as follows: Number of consultation cases 21; deaths 5. Number of private practice cases 70; deaths 1.

That the susceptibility, the duration of temperature, and the number of cases developing pneumonia was in inverse proportion to the age was the impression gained while in the midst of the work, before assembling the figures. The following tables seem to bear this out:

TABLE II. AGE *versus* SUSCEPTIBILITY.

Total cases, 70	
AGE	NUMBER
Under one year.....	11
One to two years.....	12
Two to five years.....	23
Five years and over.....	24

The relatively fewer cases under one year and from one to two years is the more significant in view of the fact that from 75 to 80 per cent. of my usual practice is among children under two years of age.

TABLE III. AGE *versus* DURATION OF TEMPERATURE.

AGE	AV. DURATION OF TEMP.
Under one year.....	2.9 days
One to two years.....	3.9 days
Two to five years.....	3.3 days
Five years and over.....	4.9 days

TABLE IV. AGE *versus* PNEUMONIA.

AGE	NO. CASES	PNEUMONIA
Under one year.....	11	2
One to two years.....	12	4
Two to five years.....	23	4
Five years and over.....	24	15

TREATMENT.

The most essential and effective measures were:

1. *Elimination of Toxins.*
 - a. Fresh air—with or without pneumonia.
 - b. Free catharsis—two or three stools a day.
 - c. Pushing fluids—water, milk, gruel, orange juice.
2. *Early treatment of the throat and nasopharynx.*
 - a. Potassium chlorate in large doses seemed unusually effective and prompt in quieting inflamed mucous membranes of the throat—definite results in 12 to 24 hours—large doses given.

Child of four or five seen in late afternoon given 20 to 25 grains in following 12 hours. Not particularly effective or necessary after using for two consecutive days. Discontinued after second day. Aspirin not as effective. Throat did not quiet as quickly. Temperature kept up for longer period—even with no pneumonia or other complications.
 - b. Gargle when old enough—not used much.
 - c. Argvrol (15%) to nose.
3. *Pushing Food.* After first 12 hours, when water only was urged. Milk, cereal, bread and broth given freely regardless of temperature.

Small amounts at three to four hour intervals rather than large amounts at longer intervals.

4. *Reducing Temperature.* Depressants did not work well—seemed contra indicated. Cool sponges and cold air most effective in reducing temperature and in quieting restlessness and delirium.

5. *Quieting patient.* Sponge all that was usually used.

In extreme restlessness and in delirium used paregoric.

6. *Stimulants.* Not used—except in more severe cases—then used symptomatically.

Caffein seemed more helpful than stryehine and was used frequently during first few days of illness in all cases more than moderately ill. Cases indicating stimulation most definitely were cases which responded poorly to all measures of treatment.

7. *Acidosis (acetone breath).* Soda Bicarb. was given in five to ten grain doses in teaspoon-amounts of water at two hour intervals until vomiting or marked acidosis symptoms disappeared.

8. Vaccines were not used extensively enough to warrant drawing conclusions as to their effectiveness either as treatment or prophylactically.

9. *Glucose solution 5%* in physiologically salt solution was used intravenously as a last resort measure in two cases. In one the results were very striking. The child, which was apparently dying, showed a tremendous reaction. The temperature, which was 104, rose to 108.2 in one hour, followed by a rapid drop to 97 in three hours. The child did not develop any new areas of consolidation and had an uneventful convalescence. In the other case life was apparently prolonged for forty-eight hours but with no marked reaction either in temperature or in favorable effect on the disease.

SUMMARY AND CONCLUSION.

1. The children infected with influenza were much less ill than adults.
2. The clinical picture of children seen in private practice differed from that of children in the hospitals in that the symptoms and physical findings in total were on the average, much less severe and the mortality lower.
3. Children ill with influenza infection presented a fairly definite and uniform picture. One of the chief characteristics of the disease was the frequency of a complicating bronchitis or broncho-pneumonia.

4. The most consistent symptoms were cough, headaches, and a mild acidosis.

5. The most consistent physical findings were high temperature, injected eyes, inflamed mucous membranes of the upper respiratory tract; bronchitis and broncho-pneumonia.

6. Children were susceptible to the infection in inverse proportion to their age. This fact seems borne out by the statistics in this series. Also, it was noticeable in the home that the order of developing the infection was parents (young adults), older children, younger children, and last the baby, even when the baby was nursed by an infected mother.

7. Inspection was particularly valuable over other methods of physical examination in determining diagnosis and prognosis.

8. Children having pertussis or but recently recovered seemed especially vulnerable, ran a severe course, were much longer ill and made a slower convalescence.

9. The most effective treatment consisted of fresh cold air, free catharsis, early treatment of throat, forced fluids, and supportive treatment in pushing soft solid foods.

10. Aside from the pneumonia and bronchitis the children were singularly free from complications.

11. The prognosis in these cases as to the severity and duration of the disease could be unusually correctly foretold at the first visit by inspection and general physical examination. The cases having broncho-pneumonia ran a more favorable course than would usually be the case in a similar number of average broncho-pneumonias. The mortality among the children when early treatment was obtained was not at all unfavorable.

12. The convalescence in the cases averagely ill was marked by a rapid recovery up to the point of being able to sit up and walk about the room; then a rather slow regaining of strength, the color and general appearance being usually better immediately after recovering than in the subsequent few days. After this period of slow recovery was passed the child returned to normal condition very satisfactorily.

13. One very definite clinical impression received was that the children developing influenza infection during the first days of the epidemic and while the spread of the disease was on the increase were much more acutely and suddenly ill than those developing the disease at the height or during the wane of the epidemic.

EPIDEMIC MENINGITIS SITUATION AT CAMP MACARTHUR: HOW DEALT WITH.*

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INTRODUCTION.

THE winter of 1917-18 has been the first which has seen large numbers of men from various parts of the country congregated in the military camps. The epidemic diseases encountered in such camps, the methods used in overcoming them, especially when such methods were successful, are worth recording. This, I feel, is the case with epidemic meningitis at Camp MacArthur. This article is a description of the meningitis situation at this camp, methods of procedure in dealing with detection of carriers, and outcome. The word "situation" is used rather than "epidemic," because at no time has the disease assumed an epidemic form; at no time did we have a second case in any company or squadron, after once cultured and the carriers isolated; nor did we have any case develop amongst those that were detected as carriers. How much this is due to the methods used and how much was coincidence, no one, of course, would venture to say, but the fact was certainly a happy one

I. DETECTION OF CARRIERS.

The most important prophylactic measure in this disease, as is well known, is the detection, isolation and treatment of the meningitis carriers. Upon this single measure, if successfully carried out, will depend the possibility of nipping in the bud the ravages wrought by this disease, if at all allowed to become epidemic in form. All the conditions necessary for this disease to become epidemic and spread rapidly are not wanting in military camps, especially during the winter months. It is for that reason that prompt action must be followed out to detect the possible carriers in order to break the chain of the vicious circle established by the occurrence of a case of meningitis in a military camp. The probability that the disease develops from meningococci, appearing first in the naso-pharyngeal mucous membrane would, if detected before the disease established itself, save the development of many cases of actual meningitis.

* Read before the Medical Officers of Camp MacArthur, at a stated meeting, June 17, 1918.

This is another good reason for the prompt detection of carriers.

Method. Upon the occurrence of a case of meningitis, that is, as soon as the diagnosis was made, the whole company or squadron, consisting of about 200 individuals, was at once placed under quarantine, cultured, and the possible carriers isolated and treated.

The culture medium in use in the beginning was serum water glucose agar. Later 5% human blood in glucose agar. The petri plates were divided in two, at most, three, parts with a glass pencil. The "west tube" was found cumbersome. The straight wooden nasal swab was found most expedient and gave good results. It does away with the necessity of tongue depressors and the possibility of saliva admixture while withdrawing the swab.

A roster of the company or squadron was prepared in duplicate. The whole company was lined up according to roster and two swabbers set to work, one taking the company from 1 to 100, the other from 101 to the last, each having a clerk read off the name and number, the latter to correspond to the number on the plate. When swabbed the men were seated facing the light; the swab was passed through the anterior nares along the floor of the nose until the posterior wall was reached. The swab was then rotated, touching posterior pharyngeal wall and eustachian eminences, withdrawn carefully, inserted in the second nostril and the same procedure carried out. The mucus was then planted on the part of the plate to correspond with the number of the man; three streaks were made with the tip of the swab, radiating from the place where the mucus was first deposited. As a rule, there was not much mucus to interfere with the obtaining of individual well disseminated colonies. The plates were placed in closed buckets, kept warm by means of hot water bottles, while in transit to and from the laboratory. Upon reaching the laboratory they were immediately placed in the incubator.

Identification of the Organism. The method described by Flexner¹ was closely followed. The plates were incubated over night at 37°; at 10 A.M. the next day they were removed and kept at room temperature and examined at 1 P.M. The suspicious looking colonies were smeared on slides and stained by Gram's method; and if found gram-negative were subcultured on slanted blood agar tubes or serum

water glucose agar slants for further study and agglutination. Those persons whose culture showed gram-negative diplococci and colonies typical of meningococcus were considered probable carriers and at once isolated from the rest of the company, and spraying with dichloramin-T instituted.

Early in this week it was noted that if the plates that showed the gram-negative diplococci were left at room temperature over night and reexamined the next day a number of them developed pigment, or became opaque and large, showing definite characteristics of micrococcus catarrhalis, flavus or other indefinite gram-negative organisms, which grow at room temperature. Thus keeping the plates for another 24 hours at room temperature has saved considerable time in attempts at agglutination.

The rule was that if the culture showed colonies that were fairly transparent, with edges that would blend with the culture medium, somewhat larger than pneumococcus, consisting of gram-negative diplococci, and not changing when kept at room temperature over night, the person from whom the culture came was considered a probable carrier and treated as such. Subcultures were made and agglutination proceeded with; if negative, the supposed carrier was at once released. But if the subculture failed and agglutination was not possible, he was kept until found free of gram-negative diplococci upon subsequent cultures.

Colony and staining characteristics, as well as morphology, were found to be the most important reliance. While isolation for agglutination was attempted in every case, it must be admitted that it was successful only in a small proportion of the cases. The chief difficulty was in obtaining a growth on the subcultures for the agglutination. Fermentation reaction has been resorted to as a last measure in some cases. The results certainly proved the advisability of our procedure. The fermentation reaction is worth resorting to and is very simple. The meningococcus, as is well known, ferments maltose and glucose, but not saccharose. The catarrhalis does not ferment glucose; and other gram-negative organisms ferment saccharose. (Dextrose, maltose and saccharose bouillon put up in Durham's fermentation tubes, to which is added azolitmin solution as an indicator, also the addition of serum water in proportion of 1-5, is to be recommended for the purpose.)

Culture Media. As already stated, the cul-

¹ Jour. Am. Med. Assn., Sept. 1, 1917.

ture medium used in the beginning was 2% agar from beef infusion broth, 1% Dextrose, to which has been added serum water in proportion of 1 to 5. (Human serum was obtained in a sterile way and mixed 1 part to sterile water 3 parts), reaction, 0.4 to phenolphthalein; this gave a perfectly clear transparent medium and grew the meningococcus readily. Later, however, this was replaced by 5% human blood added to the same glucose agar, which is being used to date.

The glucose agar is kept in 1,000 c.c. flasks in amounts of 500 c.c. in each flask; eight such flasks are kept on hand in the refrigerator. When necessity arises, four of these flasks are melted, the temperature brought down to 45° C. 25 c.c. of blood is obtained from the arm vein in a sterile way and immediately added to the 500 c.c. of melted agar and at once plated out. If the work is done in a room with closed windows and the plates protected from dust at the time of plating, the chance of contamination is reduced to a minimum.* From 35 to 40 plates are obtained from each of the 500 c.c. of blood, making 140 or more plates from the four flasks, each divided by two, giving more than enough for the culturing of a whole company. All this can be done within two hours, and the culturing of a whole company as outlined above takes from 1½ to 2 hours. The other four flasks are used to reculture the whole company on the third day, while more media are made up and a third culture is taken again on the third day.

The advantage of this procedure is obvious. Thus within four hours of the appearance of a case of meningitis we had the whole of the company under quarantine and cultured. The second and third culture, I believe, is necessary. Our findings have demonstrated the advisability of this procedure; the chance of error is minimized and the skipping or overlooking an active carrier for various reasons is thus done away with. The use of fresh blood instead of defibrinated or laked blood or the serum water agar is to be recommended, especially where one is working with an enlisted personnel who are not trained technicians, the less one has to handle a culture medium that cannot be autoclaved before use, the better off one is.

* A long piece of beaver board or an ordinary board 18 cm. wide, is set up on two test tube racks on the laboratory bench, the whole covered on all sides with a cotton sheet. The petri plates are set up under the board and are thus completely enclosed from all sides. The sheet is raised slightly in front while the medium is being plated. Endo plates have been prepared in this way in large numbers and with very little contamination.

The straight blood agar plates have also served another purpose, and that was the detection of hemolytic streptococcus. This, I feel, is as important as the detection of meningococcus carriers because of the streptococcus broncho-pneumonia, against which we have practically no remedy other than the prevention.

NUMBER CULTURED AND PERCENTAGE OF CARRIERS FOUND.

This report is based upon a study of 6,926 cultures, on a total number of 2,568 individuals. Out of this number there were 56 positive carriers and 2,513 negatives. This gives a percentage of 2.25% positive carriers. This low percentage of positive carriers may be accounted for partly by the fact that most of these individuals were really not "close contacts." The intimate association between men living in tents, most of the time in the open, where the weather is fairly good, is not marked. The wards that were cultured where the patient was from a few hours to a few days keeping to his bed should also be considered not "close contacts." The most important factor, however, in the low percentage of carriers is the good weather conditions. From tables in my possession of weather conditions of January and February (U. S. Department of Agriculture, Weather Bureau, Office of Coöperative Observer) I find there were three rainy days in January (January 11, three inches of snow; 14th and 22nd, ½ inch of snow) and one rainy day in February (February 17th). The temperature was also not very low. There were only three days in January in which the mean temperature ran below 30 degrees, and only one day in February.

Table I. gives a detailed account of the organizations cultured, number and percentage of carriers found and the total number of individuals cultured. Reference to that table will give one at a glance a clear idea of this part of the work.

The consideration of some of the groups individually is here given in order to bring out some points that cannot be brought out in the table:

GROUP 1. The reason for culturing the first organization, on December 17, 1917, for meningococcus carriers, was because a member of that organization when on a furlough was reported by wire to have died of epidemic meningitis at Cook County Hospital, Chicago. He left on

Wednesday feeling well and died on Saturday soon after his arrival in Chicago. His company was at once placed under quarantine and cultured. Out of 221 men only one positive carrier was isolated. This company was cultured three times,—December 17, 20 and 24, 1917. No other case developed in this company. It was felt at the time, that the case which died had contracted the infection on the train or just before leaving, rather than having contracted the infection while in camp. Certainly the finding of only one carrier and no other case developing while that case died within 72 hours is very suggestive. Thus, in this company of 221 men, probably not "close contacts," only one carrier, or 0.45%, was found.

GROUP 2. The second group was cultured for the first time on January 17, 1918, consisting of 199 men, in which a case of meningitis occurred,—the first case of meningitis in camp. This company yielded five carriers; one on the first culture, three on the second, and one on the third. One streptococcus hemolyticus carrier was also detected.

Thus, this group of "moderately close contacts" yielded 2.5% positives. The necessity of culturing three times instead of once is fairly well illustrated in this company, where three positives were detected on the second culture and one on the third. Other similar findings have occurred and will be referred to later.

GROUP 9. This group was that of a squadron 198 strong. All were cultured three times (January 29, February 5 and 9, 1918), and all were found negative. The case of meningitis from this group, fairly fulminating, was admitted on January 28 and died on February 3, 1918. The question of positive carrier findings being in inverse relation to the severity of the case is suggested by this group and by group 3.

GROUP 10. This group consisted of a squadron 191 strong. The first culture yielded seven positives (February 3, 1918); the second (February 5, 1918), one positive; and the third, two positive carriers; thus making a percentage of 5.3—the highest percentage of positive carriers in all the groups.

This relatively high percentage, I believe, may be explained by the fact that one case from this squadron was admitted to the hospital on January 21, 1918, with indefinite symptoms until February 2, a lumbar puncture was done and the diagnosis of meningitis estab-

lished. Meanwhile, on January 29, 1918, another case of meningitis developed in the same squadron (before the first case was diagnosed), at which time the squadron was at once quarantined and carriers isolated. No second case appeared after that. This incident strongly suggests the value of early diagnosis by lumbar puncture.

GROUP 11. This group is a squadron of 191 strong, cultured for the first time February 7, 1918, when two positives were found; the second time (February 10, 1918), four positives were detected; and the third time (February 13, 1918), there were two positives. The meningitis case of this group was brought to the base hospital in a comatous condition; 30 c.c. of spinal fluid was withdrawn and serum administered. He made an uneventful recovery. This group and the preceding one, as well as group 13, to follow, show the necessity of three successive cultures in each group. The percentage of positive carriers in this group is 4.2.

GROUP 18. This is a squadron, 153 strong, in which a case of meningitis occurred and was cultured for the first time May 18, 1918. At that time only the tent-mates, five in number, were cultured, with negative findings. These five men were cultured for the second time on May 20, 1918, and were again found negative. On the same day the rest of the squadron, 148 in number, were cultured and one carrier detected. The meningitis case remained with his company for four days before he was sent to the hospital. The low percentage of positive carriers (.65%) found under these circumstances can be explained only, I believe, by the warm weather, open tents, and outdoor life.

The squadron was cultured according to a pamphlet* received from the Surgeon General's office, which reads:—

"XII. INDICATIONS FOR CULTURING. On the appearance of a case of cerebrospinal fever, all contacts should be cultured for the detection of carriers as soon as possible. By contacts is meant those closely associated with the patient—that is, all those in the same tent or squad room with him, as well as his close associates at mess or elsewhere.

"Experience has shown the inadvisability of attempting to culture larger groups than these.

"In military service, those who give positive cultures should be held in the detention camp

* Standard Technic of Meningococcus Carrier Detection. Adopted by the Medical Department of the United States Army and Navy and the United States Public Health Service.

until they have had three successive negative cultures at five-day intervals. If the second case appears in the same company within a week of the first case, the whole organization should be swabbed."

In this particular group it meant to run chances with the whole squadron, which was under orders to leave, to be kept another week should another case have developed; while it was just as easy for us to culture the whole squadron as it was the tent-mates only. The isolation of the positive carrier found in this squadron at large minimized that chance.

I feel that our experience here in camp fairly warrants the statement that the whole company or squadron messing together should be considered "contacts" and all cultured twice or three times if possible. All this can be done within one week and the squadron released, while the carriers are isolated for treatment and observation.

DURATION OF THE CARRIER STAGE.

It is interesting to note the length of time that the carriers persisted in having meningococci in the nasopharynx. Out of a total of 56 isolated, 24 were treated in the hospital, where records have been kept. As will be seen in table 2, out of the 24 carriers treated in the hospital, the treatment with Dakin's solution and dichloramine-T. has been recorded in 10 cases. One of the remaining cases is recorded as having been treated with Dakin's solution alone. Although the treatment was not recorded in the other thirteen, from personal information, however, by the head nurse of the ward where the carriers were kept, it appears that almost all the others had treatment in some form—either Dakin's solution alone or combined with dichloramine-T.

Out of the 24 carriers three were discharged in five days, nine in six days, three in seven days; one in nine days, two in ten days, five in eleven days, one in twelve days. Thus an average stay in the hospital of seven days, with a minimum of five days and a maximum of twelve. Here, too, I believe, the warm weather as well as the treatment had something to do with the rapid clearing up of the carriers. We had no chronic carriers.

Two nurses and one physician taking care of the meningitis cases were cultured and found positive to meningococcus. All three, however, were found negative at the end of five to seven days. None of the carriers developed menin-

gitis, nor, as already stated, has there developed in any organization a second case once the organization was cultured and the carriers isolated.

II. MENINGITIS CASES.

There were to date in this camp 13 cases of epidemic meningitis. Eleven of these recovered and two died—making a total of 82 per cent. recoveries.

These cases were followed clinically by the ward surgeons under the direction of the chief of the medical service. The diagnosis was made by laboratory findings, the meningococcus being demonstrated in the spinal fluid in each case except the last one (Case 13 on the chart). In this last case a most careful bacteriological examination of turbid spinal fluid of three successive days found all negative bacteriologically. Blood cultures were found sterile and cultures from posterior nares were also found negative to meningococcus. Response of the patient to the antimeningococcus serum—his symptoms and spinal fluid clearing up within four days—was accepted as evidence of its having been an epidemic meningitis case.

Agglutinations were carried out on the therapeutic sera on hand at the beginning in order to establish which of the sera was best to be used. We had New York Board of Health serum and that of a commercial house. The meningococcus obtained from the spinal fluid of the first case of meningitis was used in the test. It was found that while the New York Board of Health serum completely agglutinated in dilutions of 1 to 2,000, the commercial serum only partly agglutinated in dilutions of 1 to 50 and none in dilutions of 1 to 100. Naturally the New York Board of Health serum was recommended and used in all cases. I well recollect the ward surgeon (Lieut. Preston) complaining of the lack of clinical response when he used the commercial serum while we ran out of the New York Board of Health serum for a short time. We felt that the clinical findings corroborated the agglutination reaction. I feel, that our low mortality (18%) is in a great measure due to the use of a therapeutic serum demonstrated by laboratory methods to be effective against the particular type of meningococcus we had to deal with.

The data here given on the thirteen cases were obtained entirely from a critical analysis of the clinical records. All this data will be

found tabulated in detail in Table III. It is of interest to note that eleven of the thirteen cases occurred within twenty-five days (January 16 to February 10), which were the coldest days of the winter. Four of these eleven cases came to the hospital in one day, each from a different squadron. The twelfth case appeared on March 30, about seven weeks after the last case; and case thirteen appeared in about seven weeks after that. The first eleven cases would suggest that the disease had started to assume an epidemic form and that the measures taken for the isolation of the carriers had probably considerable to do in checking it. The last two cases are apparently sporadic in nature.

Symptoms on Admission. The symptoms on admission are worth calling attention to. Nine had headache and stiffness or pain in neck muscles. Four were comatose on admission with stiffness of neck or positive Kernig's.

I wish to emphasize here that while it is fairly easy to make a diagnosis when the patient shows definite symptoms of meningitis that are severe enough to leave no doubt in one's mind, it is of extreme importance, however, to make a diagnosis early in those cases that present indefinite or rather mild symptoms, if the spread of the disease is to be avoided. I believe that if attention be paid to the following symptoms: Headache, pain or stiffness of the neck muscles with a positive Kernig's, and when in doubt a culture for meningococcus be made from the posterior nares, and finally a lumbar puncture done, the diagnosis could be settled without difficulty. The lumbar puncture, if properly performed, does not jeopardize the patient in the least and is the best means of definitely establishing the diagnosis.

Prognosis. There were four cases admitted to the hospital in a comatose condition and recovered, while the two that died came in with symptoms not so grave. The onset of the disease—at least under serum treatment, as far as could be judged from this small series of cases—is no criterion as to the outcome of the case. This fact has been referred to by Flexner¹ and others.

The average length of time that those of the patients who recovered showed symptoms of meningitis after the serum treatment was begun is 8.6 days, the maximum being 14 and the minimum four days.

The average length of time that the recovered

cases remained in the hospital for meningitis was 45 days, with a maximum of 110 days and a minimum of 23. The case that remained in the hospital for 110 days is the one that had a relapse 31 days after his first attack and during convalescence.

The average number of doses of antimeningococcus serum administered was eight, with a maximum of seventeen and a minimum of two.

Three of the cases received the first dose of serum on the first day of the disease; four on the second, two on the third, one on the fourth, one on the fifth, one on the sixth, and one on the thirteenth day.

There does not seem to be, in this series, any relation between the day in the disease the serum was begun and the mortality. In fact, in the two cases that died the serum treatment was begun on the second day in each.

COMPLICATIONS AND SEQUELAE.

An analysis of the records show the following complications to have occurred among the thirteen cases:

Ear. One case that showed marked deafness on the next day after being admitted, grew steadily worse and died in 18 days. The second case had a transient pain which yielded to treatment. Ear complications, 18 per cent.

Eye. One case had double vision and paralysis of the right rectus muscle, and another a mild conjunctivitis; both recovered. A third case was left with blindness of the right eye, diagnosed by the eye specialist as amaurosis, either of nerve or brain origin from behind the retina. Eye complications, 23 per cent.

Arthritis. None of the cases were recorded as having had a true arthritis.

Mental. One case developed a psychosis diagnosed as dementia precox, and is still in the hospital. He is the only case that developed a psychosis—making 9 per cent.

Orchitis. There were two cases with orchitis and both recovered (18%).

Serum Disease. There were four cases that developed serum disease. In two, on the tenth day following the administration of the first dose of serum, one on the fifteenth day and one on the seventh day after the first serum treatment for his relapse—this last case had no serum sickness while being treated for the first attack.

Five of the thirteen cases showed no complications.

In the eleven cases that recovered, five had no complications and no sequelae. In four of the remaining six cases the complications were of a transient nature and they made a complete recovery; while of the other two, one is still in the hospital with a psychosis and the other was discharged with blindness of one eye. The other eye has $\frac{20}{70}$ vision.

Relapse. Only one case had a relapse of the meningitis while convalescing in the hospital—thirty-one days after the first attack, but finally made a good recovery.

Mortality. The mortality of this series of 13 cases is: (13 cases, 2 deaths)=18 per cent.

The mortality of this disease as given by Flexner¹ in epidemics of this disease in various parts of the world ranged between 42% and 90% in those cases that were not treated with serum, and from 25% to 30% in those cases that were treated with serum. Our mortality of 18% is certainly a very satisfactory one.

SUMMARY.

It may be well to bring together here briefly all the facts that were brought out in this paper.

The total number of cultures studied was 6,926 on a total number of 2,568 individuals—made up of 18 groups (9 squadrons, 3 companies, 5 wards, and one group composed of guards and prison mates). The number of positive carriers found was 56, making 2.25% of the total cultured. The highest percentage in any group was 5.3%. None of the groups could be called "close contacts," because of the open-air life which obtained in the squadrons; and in the wards the patients were kept in bed. The average length of time in 24 of the 56 carriers, where records were kept, that the meningococcus persisted was seven days—a maximum of twelve and a minimum of five days. Practically all the 24 carriers had some treatment while they remained in the hospital. We had *no chronic carriers*. Whether the treatment had anything to do with the way the carriers cleared up is hard to tell; the treatment is simple and worth doing. The fact that at no time did we have a second case develop in any of the groups that were once cultured and the carriers isolated does, I believe, demonstrate the value of the method of procedure we have carried out in this camp.

There were 13 epidemic meningitis cases in this camp; eleven occurred within 25 days (January 16 to February 10), which were the coldest days of the winter. The last two cases could be considered sporadic in nature. Four of the eleven occurred in one day (January 28). The cold weather apparently causes a more intimate association of the men and direct transmission from carrier to susceptible individuals is here suggested.

Lumbar puncture has been the final and definite means of diagnosis in this series, and it cannot be emphasized too strongly that, in cases with symptoms at all pointing to meningitis, more especially when other cases of meningitis have occurred, lumbar puncture should be resorted to and done early. It should be done not merely from the standpoint of the patient and diagnosis, but for the sake of the many as a public health measure.

The average length of time that the patient actually showed symptoms of meningitis after serum treatment was instituted was eight days. A maximum of fourteen and a minimum of four days.

The average number of doses of serum given was eight—a maximum of seventeen and a minimum of two.

The sequelae of the cases that recovered were: One is left with loss of sight in one eye, and another with a psychosis. Five had no complications at all and the complications in the others were fairly transient in nature. (The four with the serum disease and the two with orchitis recovered.)

CONCLUSIONS.

The only conclusions that may be drawn from the foregoing are:

1. The whole company or squadron who mess together should be considered "contacts" and cultured for carriers upon the appearance of a case of meningitis.

2. The culturing of a whole company for three successive times at intervals of two or three days will minimize the possibility of overlooking any positive carriers.

3. Five per cent. blood glucose agar plates is the easiest of access and has given the best results. It also makes it possible to identify hemolytic streptococcus carriers.

4. The serum treatment seemed to have reduced the mortality of this disease in this

camp to a minimum (18%). The therapeutic value of the serum to be used may be determined by agglutination tests, using the particular organisms isolated from the cases as they appear.

In concluding, I wish to thank Lieutenant-Colonel S. W. French, the commanding officer

of the base hospital, for his hearty coöperation in carrying on this work. I also wish to express my appreciation to Lieutenants J. H. Murphy and O. C. Hirsch, who have done a considerable part of the laboratory work connected with this study.

TABLE I. "CONTACTS" CULTURED.

NO. OF GROUP	ORGANIZATION	DATE	NO. OF CULTURE	NEGA-TIVE	POSITIVE	TOTAL CULTURES	TOTAL NO. OF INDIVIDUALS	PER CENT. POSITIVE CARRIERS	REMARKS
1	Co. A, 126 Inf.	12-17-17	1st	186		186	186	.45%	Not "Close Contacts." Meningitis case died while on furlough upon arrival in Chicago.
		12-18-17	1st	35	1	36	36		
		12-20-17	2nd	207		207			
		12-24-17	3rd	217		217			
2	Sqd. 30, A. S. S. C.							2.5%	First meningitis case in camp. "Moderately Close Contacts." (1 positive Streptococcus Hemolytic carrier also found).
		1-17-18	1st	198	1	199	199		
		1-19-18	2nd	188	3	191			
		1-22-18	3rd	190	1	191			
3	Sqd. 15, A. S. S. C.	1-21-18	1st	190		190	211		Difficult to explain absence of carriers. See text.
		1-25-18	2nd	211		211			
4	Ward 23, B. H.	1-22-18	1st	53		53	56		Meningitis case developed in ward following measles. No carriers.
		1-23-18	2nd	56		56			
5	Sqd. 43, A. S. S. C.	1-22-18	1st	184	5	189	191	3.13%	Not "Close Contacts." Meningitis case developed after 10 days in hospital, following measles.
		1-24-18	2nd	191		191			
		1-28-18	3rd	185	1	186			
		1-28-18	1st	43		43	43		
6	Ward 20, B. H.	1-30-18	2nd	43		43			A ward of not "Close Contacts." No carriers.
7	Co. L, 128 Inf.	2-2-18	1st	191	1	192	196	1.5%	Not "Close Contacts." Case fairly fulminating.
		2-3-18	2nd	189	2	191			
		2-5-18	3rd	196		196			
8	Sqd. 5 & 375, A.S.S.C.	1-31-18	1st	187	3	190	197	1.5%	Case comatose when admitted. Probably not "Close Contacts." (1 Positive Streptococcus Hemolyticus).
		2-4-18	2nd	197		197			
		2-6-18	3rd	195		195			
9	Sqd. 61, Ret. A. S. S. C.	1-29-18	1st	198		198	198		Fulminating type of Meningitis. No positive carriers. Inverse relation of severity of disease to percentage of positive carriers suggested.
		2-5-18	2nd	198		198			
		2-9-18	3rd	197		197			
10	Sqd. 28, Ret. A. S. S. C.	2-3-18	1st	182	7	189	191	5.3%	1st meningitis case in group not diagnosed until 3 days after 2nd case occurred. (2 Positive Streptococcus Hemolyticus).
		2-5-18	2nd	184	1	185			
		2-11-18	3rd	189	2	191			
11	Sqd. 56, Ret. A.S.S.C.	2-7-18	1st	189	2	191	191	4.2%	Case comatose when admitted. Necessity for 3 cultures shown. See text.
		2-10-18	2nd	186	1	190			
		2-13-18	3rd	185	2	187			
12	Grd. & Pr. 324 Rmt.	2-12-18	1st	22	1	23	23	4%	Supposed to be "Close Contacts." Guard and Prison inmates.
		2-14-18	2nd	23		23			
		2-16-18	3rd	21		21			

No. of Group	Organization	Date	No. of Culture	Negative	Positive	Total Cultures	Total No. of Individuals	Per Cent. Positive Carriers	Remarks
13	Sqd. 19 & 375 A. S. S. C.	2-9-18	1st	189	4	193	193	5%	Meningitis case mild. Per cent of Positive Carriers relatively high. See Text.
		2-12-18	2nd	188	3	191			
		2-14-18	3rd	185	3	188			
14	Ward 20, B. H.	2-3-18	1st	28		28	29	3.4%	Patient in bed 10 days. Per cent. of positives low. (1 Strep. Hem.) See 15.
		2-5-18	2nd	29		29			
		2-6-18	3rd	28	1	29			
15	Ward 6, B. H.	2-4-18	1st	44		44	44		Case in bed 5 days. No spread of infection when in bed is suggested.
		2-6-18	2nd	41		41			
		2-8-18	3rd	34		34			
16	Ward 18, B. H.	2-6-18	1st	35		35	35	2.8%	Case in ward few hours. (1 Strepto. Hemolyt. Posit.)
		2-7-18	2nd	34	1	35			
17	Hdq. Co. 21, F. A.	4-1-18	1st	191	5	196	196	3%	Case mild, 4 days in Co. before sent to hospital. See remarks on group 18.
		4-3-18	2nd	191	1	192			
		4-5-18	3rd	191		191			
18	Sqd. 616, A. S. S. C.	5-18-18	1st	5		5	153	.65%	Mild case. Here warm weather may explain low positive per cent. See text.
		5-20-18	2nd	5		5			
		5-20-18	1st	147	1	148			
Total				6870	56	6926	2568	AVERAGE 2.25%	

TABLE II. MENINGOCOCCUS CARRIERS.

CASE No.	REG. No.	Co. OR Sqb.	ORGANIZATION	DATE OF ADMISSION	DAYS IN HOSPITAL	TREATMENT
1	7304	30	A. S. S. C.	1-18-18	10	Dakin's Solution and Dichloramine T. Oily Spray.
2	7564	30	A. S. S. C.	1-22-18	6	Dakin's Solution and Dichloramine T. Oily Spray.
3	7563	30	A. S. S. C.	1-22-18	6	Dakin's Solution and Dichloramine T. Oily Spray.
4	7562	30	A. S. S. C.	1-22-18	6	Dakin's Solution and Dichloramine T. Oily Spray.
5	7672	30	A. S. S. C.	1-22-18	5	Dakin's Solution and Dichloramine T. Oily Spray.
6	7891	43	A. S. S. C.	1-27-18	7	Dakin's Solution and Dichloramine T. Oily Spray.
7	7892	43	A. S. S. C.	1-27-18	12	Dakin's Solution and Dichloramine T. Oily Spray.
8	7888	43	A. S. S. C.	1-27-18	6	Dakin's Solution and Dichloramine T. Oily Spray.
9	7889	43	A. S. S. C.	1-27-18	6	Dakin's Solution and Dichloramine T. Oily Spray.
10	7890	43	A. S. S. C.	1-27-18	6	No Record of Treatment.
11	8081	43	A. S. S. C.	1-30-18	8	No Record of Treatment.
12	8292	L	128 Inf.	2-3-18	6	No Record of Treatment.
13	8333	L	128 Inf.	2-4-18	5	No Record of Treatment.
14	8334	L	128 Inf.	2-4-18	5	No Record of Treatment.
15	8462	B. H.	Med. Dept.	2-7-18	9	Dakin's Solution and Dichloramine T. Oily Spray.
16	8727	324	Rmt. Q.M.C.	2-13-18	8	Dakin's Solution only.
17	8762	56	A. S. S. C.	2-14-18	7	No Record of Treatment.
18	10822	Hdq.	21 F. A.	4-4-18	10	No Record of Treatment.
19	10851	Hdq.	21 F. A.	4-5-18	9	No Record of Treatment.
20	10760	Hdq.	21 F. A.	4-3-18	11	No Record of Treatment.
21	10758	Hdq.	21 F. A.	4-3-18	11	No Record of Treatment.
22	10759	Hdq.	21 F. A.	4-3-18	11	No Record of Treatment.
23	10756	Hdq.	21 F. A.	4-3-18	11	No Record of Treatment.
24	10757	Hdq.	21 F. A.	4-3-18	11	No Record of Treatment.

TABLE III. MENINGITIS CASES.

CASE No.	Reg. No.	DATE OF AD- MISSION	PREVIOUS ILL- NESS	MENINGOCOCCUS IN SPINAL FLUID	SYMPTOMS		Cont'd for days	TOTAL DOSES SERUM	DAY IN DISEASE 1ST SERUM GIVEN	RELAPSE	DAYS IN HOSP. FOR MENINGITIS
					On admission						
1	7112	1-16-18	Measles	Positive	Comatose, stiff neck, Kernigs positive		8	10	1st	No	48
2	6774	1-20-18	Diphtheria Measles	Positive	Headache, stiff neck, Kernigs positive		5	6	1st	No	34
3	7310	1-18-18	"Negative"	Positive	Severe headache, pain in neck		18	11	2nd	No	18
4	7511	1-21-18	Measles Malaria	Positive	Pain in head, vomiting (Fainted at mess)		10	8	13th	No	45
5	7948	1-28-18	Diphtheria	Positive	Comatose 24 hours, delirious 48 hours		14	17	2nd	No	25
6	7959	1-28-18	Mumps Scarlet fever Measles	Positive	Comatose, Kernigs positive, Brudzinskys positive		10	14	2nd	No	37
7	7980	1-28-18	Usual dis- eases of child.	Positive	Headache, chill, slight rigidity of neck, Kernigs positive		4	4	6th	No	33
8	7921	1-28-18	Measles Jaundice	Positive	Violent chill day before, pain in neck, Kernigs positive		6	11	2nd	No	6
9	8150	1-31-18	Measles	Positive	Severe headache two days before admis- sion, muscles sore		10	11	3rd	No	34
10	8360	2-5-18	Usual dis- eases of child.	Positive	Comatose, Kernigs positive		6	8	1st	No	48
11	8567	2-10-18	Measles Pneumonia	Positive Relapse (3-13) Positive	Headache, pain over body (3 days before admission). Relapse of meningitis symptoms 3-13-18		4 4	6 4	3rd	Yes on 31st day	110
12	10581	3-30-18	Usual dis- eases of child.	Positive	Headache, occipital; stiff neck; vomit- ing; Kernigs positive (for last 3 days)		5	2	4th	No	62
13	12485	5-16-18	Measles Mumps Smallpox	40 cc. very turbid, nega- tive to bacte- ria	Headache, stiff neck, Kernigs positive (Started 4 days prior to admission)		7	2	5th	No	23

TABLE III. MENINGITIS CASES (concluded).

Case No.	COMPLICATIONS AND SEQUELAE						RESULTS	REMARKS
	Ear	Eye	Arthritis	Mental	Orchitis	Serum Disease		
1	None	Double vision	None	None	Bilateral	Present 10 days of 1st serum	Good recovery	First case in camp. Whole squadron cultured. Five carriers isolated. No other case in same squadron.
2	None	None	None	None	None	None	Good recovery	Admitted with measles. Five days after eruption cleared, meningitis developed. No other case occurred in the ward.
3	Marked deafness, 1-19-18	None	None	None	None	None	Died (Grew worse steadily)	His lack of response to anti-meningococcus serum and deafness suggested complicating pneumo infection. Five doses of anti-pneumo. serum given. Autopsy disproved latter.
4	None	None	None	None	None	None	Good recovery following serum given	In hospital for 10 days with indefinite symptoms when lumbar puncture was done and diagnosis established.
5	None	None	None	Psychosis	Yes, (rt.)	None	Meningitis recovered; psychosis unimproved	Psychosis (dem. precox) set in March 16, 1918. This case is still in the hospital for the psychosis.
6	None	None	None	None	None	None	Good recovery	Complained of severe headache before he became comatose and was sent to hospital. Course uneventful.
7	None	None	None	None	None	Present on 10th day	Good recovery	Diagnosis made in this case five days after admission, by lumbar puncture.
8	None	Blurred vision	None	None	None	None	Died	Fulminating type. Thought to have pneumonia on account of chill and temperature, but lumbar puncture cleared up diagnosis.
9	None	Rt. eye blind, lt. eye 20/70	None	None	None	None	Meningitis recovered; eye unimproved	Lumbar puncture established diagnosis. "Eye condition of nerve origin (?) in back of retina. (Amaurosis.)" (Capt. Heard.)
10	Pain in left ear	None	Pain in legs	None	None	Present on 15th day	Good recovery	Delirious 3 days. Uneventful recovery.
11	None	Conjunctivitis, 3-14-18	Bones, joints & muscles of leg ache	None	None	Present on 7th day of treatment for the relapse	Recovered	On 3-11-18 there was a return of the meningitis symptoms, on 3-13-18 lumbar puncture done and antimeningococcus serum administered. He has left on furlough, June 12, 1918, in good condition.
12	None	None	None	None	None	None	Recovered	Course uneventful.
13	None	None	None	None	None	None	Good recovery	Has made most rapid recovery in the whole series. Posterior nares negative to meningococcus. Blood sterile.

"THE CONTINUOUS INHALATION OF OXYGEN GAS IN PNEUMONIA AND IN OTHER DISEASES."*

BY ALBERT N. BLODGETT, M.D., BOSTON.

IN a paper by S. J. Meltzer, M.D., LL.D., published in the *New York Medical Record* for Oct. 19, 1918, appears an article upon "Insufflation of Oxygen in Pneumonia" (Vol. xciv., p. 689), in which Dr. Meltzer refers to a paper published by him in the *New York Medical Record* (Vol. xcii., p. 1), upon "The History and Analysis of the Methods of Resuscitation: with a Description of the Author's Pharyngeal Insufflation Apparatus for Artificial Respiration in Man."

In the same paper Dr. Meltzer also refers to an article published by him in the *Journal of the American Medical Association* (Vol. lxix., p. 1150), upon "The Therapeutic Value of Oral Rhymic Insufflation of Oxygen."

The paper appearing in the *Medical Record* of July 7, 1917, is a rather exhaustive account of the methods of treating asphyxia from early times to the present day, with an elaborate description of his apparatus for this purpose.

This apparatus, as described by Dr. Meltzer in his own words consists of: First, a bellows; second, a respiratory valve; third, a pharyngeal tube; fourth, a T-tube; fifth, a padded wooden board to be used for compressing the abdomen by means of belts. "All these ought to be kept connected and kept in readiness in a small handy bag. In addition to the described apparatus the bag ought to contain: (1) a stomach tube, (2) an appropriate tongue depressor, (3) a roll of tape, (4) a pair of scissors. Bellows, rubber tubing, etc., should be frequently examined for their efficient activity in order that the apparatus should not fail when its application is needed in emergency."

Dr. Meltzer continues: "When coming to a victim who requires immediate artificial respiration the order of procedure should be as follows: First, the application of the abdominal board in order to prevent the entrance of the insufflated air into the stomach and intestines; second, to pull out the tongue as far as possible by means of the forceps; third, to insert the pharyngeal tube of the readily connected apparatus as deep into the pharynx as possible with the flat

side of the tube on the tongue. The tongue should now be tied to the tube by means of the tape—not too tight. The tying of the tongue has two purposes: (1) It prevents the falling back of the posterior end of the tongue and of the glottis, and (2) it keeps the pharyngeal tube in place. The working of the bellows with one foot, and the moving of the ring of the aspiratory valve with the thumb of the right hand should be started immediately on tying the tongue of the pharyngeal tube.*"

If any apology is due for my temerity in addressing the *Boston Medical and Surgical Journal* upon this subject after the lapse of twenty-eight years, it may be pleaded in my excuse that the researches of Professor Meltzer in seeking information upon inhalation of oxygen in pneumonia did not lead him to know that in 1890 I published a paper in the *Boston Medical and Surgical Journal* (Vol. cxix., p. 481) on "The Continuous Inhalation of Oxygen in Pneumonia and in Other Diseases," with a record of a case in which the oxygen was continuously given for *one hundred and six hours*, with recovery of the patient.

In the place of a battery of Ten Pieces of apparatus, such as no person less skillful than Professor Meltzer could possibly adjust (which must be obtained under his name from George Tiemann & Co., New York), I interposed only a simple wash-bottle between the tank of oxygen and the lips of the patient; the sole purpose of which is to regulate the flow of gas to the patient by the rapidity of the bubbles of oxygen from a small tube in the wash-bottle, by which I found that the rate of about one hundred bubbles in a minute of time sufficed to furnish an amount of oxygen to relieve the impending danger of suffocation, and its continued use was followed by recovery of the patient, from the impending calamity, after a period of *one hundred and six hours* of the *continuous inhalation of oxygen gas*.

"To my mind, the apparatus which is here described is practically the most efficient one for the execution of artificial respiration in cases of emergency. It is absolutely reliable; it is very easy to handle, and is comparatively inexpensive. My statements which are here made are based upon personal observations. I have, of course, very few opportunities of testing it upon human beings. I have hardly need to state that I have no other motive for pleading for the introduction of this apparatus into medical and Samaritan practice than a scientific and humanitarian interest. The manufacturers are spending immense sums of money for advertising and popularization of their machines. Their agents have no other means of demonstrating the possible usefulness of their respiratory apparatus than by showing its action upon a rubber bag. I need not discuss here the unreliableness of any of these demonstrations; neither do I need to discuss the insufficiency of the evidence derived from the testimony of some physicians. The apparatus, 'Meltzer's Pharyngeal Insufflation Apparatus for Artificial Respiratory Cases of Emergency in Man,' can be obtained from George Tiemann & Co., 107 Park Row, New York. It is not patented. Its cost is probably less than one-fifth that of the patented apparatus."

* This was the title of the former paper of 1890. It is used here because Dr. Meltzer has ignored the principal features of the whole paper.

Dr. Meltzer's instructions are precise, and are transcribed in his own words: "When coming to a victim who requires the immediate artificial respiration (supposing that the "small" handy bag is obtained from Messrs. Tiemann & Co.) the order of procedure should be as follows: First, the application of the abdominal board in order to prevent the entrance of the insufflated air into the stomach and intestines; second, to pull out the tongue as far as possible by means of the forceps; third, to insert the pharyngeal tube of the readily connected apparatus as deep into the pharynx as possible with the flat side of the tube on the tongue. The tongue should now be tied to the tube by means of the tape—not too tight. The tying of the tongue has two purposes: (1) It prevents the falling back of the posterior end of the tongue and of the glottis, and (2) it keeps the pharyngeal tube in place. The working of the bellows with one foot, and the moving of the ring of the aspiratory valve with the thumb of the right hand should be started immediately on tying the tongue to the pharyngeal tube."†

"Dr. Samuel J. Meltzer of New York said that about eight years ago he constructed a simple apparatus for intratracheal insufflation for Dr. Carrel. He had seen in many cases of his experimental dogs in which the thorax was transversely opened widely, double pneumothorax. These dogs recovered without having had infection. In the course of the last year Meltzer demonstrated to several hundred military officers anesthetized and curarized dogs with the chest wide open. The entire heart was exposed to full view. The animals were kept alive and with normal blood pressure by the method of pharyngeal insufflation. The experiment never failed. He had often demonstrated a fact of practical importance, namely, that if artificial respiration was sufficient the heart could be handled freely with impunity. Artificial respiration was very useful during anesthesia, and was indispensable in major operations upon the thoracic cavity."

Dr. Meltzer states that "he has very little opportunity to test his apparatus upon human beings," and his experiments are accompanied by such fatal mutilation of the animals used in demonstration that it may well be doubted if he could prevail upon a "human being" to undergo the peril.

In the presence of an *actual* Patient, in an *actual* Sickroom, it would seem that such a degree of detail and of apparatus might well consume so much time, which is of *Supreme Importance* in so imminent peril of death, that the victim would inevitably die before the arrangements could be completed; and the melancholy ministrations of the undertaker could be finished before the apparatus for resuscitation could be brought into application to the unhappy victim.

LOSS OF FAITH AS A WOEFUL OUTCOME OF TODAY'S SPECIALISM.

By BEVERLEY ROBINSON, M.D., NEW YORK.

SCARCELY a day passes without this sad truth being brought home to me, at the present time; and, unfortunately, the trouble does not grow less, but increases all the while. Let me give a few concrete examples.

A young woman, tired out nervously with war work, had a very painful facial neuralgia, which recurred during the night and was cured only with a nerve tonic and the use of repeated small doses of codein. Unfortunately, she was told, and, indeed, thought herself, that it was possibly due to her teeth. She consulted the dentist. He could find nothing apparently amiss, but thought it wise to have an x-ray picture taken by a radiologist. The result of this expert's investigation was to show what to him meant an abscess about the roots of two important teeth and extraction of one immediately, was advised. The other tooth, he thought, might possibly be saved by considerable refined dentistry. The patient then consulted another radiologist. He was not confident as to the proper interpretation of his radiograms and wished the patient to see another dentist. This she did, and he advised immediate extraction of both teeth. She finally consulted a third dentist. He reserved decision until he could see and determine the meaning of the radiograms. The patient has been much upset, has lost sleep and not unnaturally, since she has been informed that if she retains these diseased teeth (if they be so) she will suffer in health; and, indeed, that it has already been much and imminently jeopardized.

† From the *Medical Record* of Nov. 16, 1918.

As I have stated, the painful neuralgia was entirely cured before the fresh dental work was begun and before either or both teeth were extracted. Alas, the pity of it!

A young married woman, with two small children, has for herself and husband a very able practitioner in every way, who is a hospital physician both to a general hospital and to a children's hospital. Albeit, he is not known as a pure child's specialist. The mother has imbibed the idea that he is not thoroughly competent to look after her children, because he is not so labelled. She gets this idea primarily from some of her kind friends. Again, she criticizes mentally because her own physician does not find it essential to exaggerate minor ailments and to institute all sorts of useless, very troublesome doings, by reason of the very modern foolishness of acidosis, a new term used to cover up a very old idea and to prey upon the tender nerves of too anxious mothers. Finally, the children's specialist, in a way, although prominent mainly as an obstetrician, calls and calls again to advise and control a system of modified feeding, internal medication and above all, frequent saline, or alkaline high injections, necessitating the presence of a trained nurse and forced housing to an active little fellow whose whole disturbance could be mended with a few moderate doses of rhubarb and soda mixture and a little judicious limitation of his food, which was rather excessive.

I could go on *ad nauseam*, or *ad infinitum*, with examples. One more and I have done, except for a few moral, or philosophical reflections.

A patient has specks before his eyes. He consults several prominent oculists. None agrees wholly with the previous one. He is told it comes, possibly, from his kidneys. He is told there is thickening of the coats of the ocular vessels as seen with the ophthalmoscope. He is told he has eye strain and must not read, or use his eyes at all, or very little, for a time. He is told his eye-glasses are of no use; indeed, worse than useless. He must have a new pair, a very expensive one, because the formula of the new glasses is very complicated and requires the finest, most skilled work of the oculist and of the optician. His medical adviser

of many years, who has already saved him more than once from the hands of the philistines, who would have made him mentally a wreck with declaration of chronic nephritis, and again with ulcer of the stomach, because of recurrent dyspepsia, now saves by simply stating that such specks often disappear as suddenly as they come and leave not a trace behind of any ailment of consequence.

Now where does all this lead except to one thought, namely, poor human beings who to-day are being exploited in many directions in medicine and surgery, not simply by quackery, but by those who are honest and well intentioned, we might admit, but who have themselves a concentrated over-valuation of their own special knowledge and hence ultimately the downfall of the patient's faith in medicine, or those who profess the calling.

To the old, time-honored practitioner, this is all lamentable in the extreme and should be remedied, if at all possible, now. But how? I know of only one way. Get your practitioner, in whom you believe, because you know he has education, experience, common sense, loyalty, disinterestedness, and stick to him. When he wishes a consultation, have it, but still believe in him and trust him above all others. If he can learn something useful to guide him, he will gladly avail himself of it; if he feels that you would be better off in the hands of another, for some special ailment and for a time, he will tell you so—but be sure that the specialist does nothing, at any time, that does not meet with his consent and approval. He is, and must be, the final consultant, and is the wisest, probably, of them all, and the one who is by all odds most valuable to you, and you should show your appreciation of it, not merely by a few words of passing thanks, but by paying him liberally for all he does for you and, surely, quite as much as you do to the physician who simply looks after a small piece of your bodily make-up and who gets a big, round fee, as a rule, for special skill, it may be, in a very limited direction, but who has not for you and many others "borne the burden and heat of the day" and never will.

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THE RAT AND INFANTILE PARALYSIS.

THE question of the rôle of the rat in the spread of infantile paralysis has aroused considerable interest and speculation. A pamphlet issued recently, "The Rat and Infantile paralysis—A Theory," by Mark W. Richardson, M.D., presents evidence which is conducive to the belief that this disease is due to a precedent infection of rodents. Dr. Richardson presents evidence against the human contact theory as a determining factor in the spread of this disease and suggests that the epidemiological facts could be better harmonized if one assumed an antecedent and underlying infection of rodents, and the mediation of the flea.

Whoever has seen a city slum street in summer cannot imagine more intimate personal contact than is enjoyed by the tenement children playing in the crowded, hot, dusty thoroughfare, and yet it appears that cases of infantile paralysis might be numerous in the ten-

ements on one side of a street, with no cases whatever in similar houses opposite. In one district investigated, the contagion appeared to be quite sharply localized in the quadrangle formed by the tenements bounding a city block, and did not travel across the street in spite of all the human migrations and opportunities for direct and indirect contact. If human carriers could not carry the infection across the street, then it is equally improbable that the cases in the same block were transferred one to the other by human agency. On the other hand, the unrestricted migration of infected rats over the back yards enclosed by such tenement quadrangles would explain quite adequately the sharp localization of the human cases. A somewhat parallel phenomenon has been seen in plague conditions in India, where people of different castes never associate with each other. In spite of this absence of human contact, plague spreads from caste to caste. The explanation is, in the end, simple: although personal association is forbidden, the houses, fronting oftentimes on different streets, have adjacent back yards over which rats travel freely.

Up to 1890, bubonic plague had been restricted to certain well-defined areas of Asia but during the last twenty-five years, this disease has spread over the whole world. Within the same period of time, infantile paralysis, which previously had been noted in single small epidemics, has become world-wide in its distribution, with outbreaks much more numerous and of much larger size. This recent spread of plague may be attributed to the marked increase in the world traffic in grain, for no fact is better established than the intimate relation of bubonic plague to the grain business.

The fact that infantile paralysis occasionally invaded the homes of the well-to-do has been used as an argument against rodent infection as preliminary to human cases. It is, however, well known that rats may be present in localities where they would least be expected. Furthermore, pet animals might perfectly well carry to the children infected fleas. In bubonic plague it has been found that although the rat flea prefers its natural host, it can, in the absence of such natural host, be found on

practically all domestic animals. Furthermore, the human flea, *Pulex irritans*, has been found upon rats, and can, on occasion, transfer bubonic plague from animal to animal.

It is of interest to note that in bubonic plague the primary bubo is, in the great majority of instances, in the groin. This is, of course, because the flea reaches most easily the legs of his victim. In infantile paralysis, the vast majority of children are paralyzed in the lower extremities, either alone or in combination with other parts of the body. This marked excess of paralysis in the lower extremities is strong presumptive evidence that the infection takes place through the lower extremities.

Another point of similarity shown by infantile paralysis and bubonic plague is seen in the fact that it is rare to have more than one case in a single house or family.

The following conclusions are presented in this pamphlet:

1. Although the virus of infantile paralysis has been demonstrated in the secretions and excretions of persons sick with the disease, and (b) healthy third persons who have or have not been in contact with patients, and although such secretions and excretions may in animal experiment remain active for many months, the epidemiological facts are strongly against the theory that infantile paralysis is spread from person to person by direct or indirect contact. On the other hand,—

2. The epidemiology of infantile paralysis corresponds so remarkably with that of the bubonic plague, a disease known to be due to the rat and flea, that it can be stated with great probability that human infantile paralysis is due to a precedent and underlying infection of rodents.

3. As with bubonic plague, final proof as to the rôle of the rat and the flea in infantile paralysis must rest in elaborate laboratory investigation.

Health report of November 22 contains a review of army conditions.

"During the past two months a second wave of severe influenza infection has swept over France and has spread to all the countries of Europe in about equal force. In the United States the onset of the epidemic was, as is usually the case with pandemics of influenza, about three weeks later than in London and Paris. The first and rather benign phase of the infection, it will be remembered, began in the middle of April and had largely disappeared in the American Expeditionary Forces by the end of July. The second phase, which has not yet reached its maximum incidence, has been characterized by a much higher percentage of initially severe cases, and particularly of pulmonary complications. Coming at the time of the rainy and changeable weather, this new invasion of infectious colds and coughs has been accompanied by a constantly increasing number of pneumonias. New replacement draft detachments arriving with each convoy have added the heaviest percentage of infected men per strength and have shown the highest percentage of complicating pneumonia. It has been a usual observation that when infections of the upper respiratory tract prevail, the incidence of meningitis in the community increases soon after, and this rule prevails at present. An increasing severity of the pneumonia is commonly found when the disease is permitted to pass rapidly through successive hosts."

The areas of heaviest infection of influenza, pneumonia and meningitis in the American Expeditionary Forces are the base ports, the depot divisions, and such training areas in both S. O. S. and advance zones as have received replacements or new organizations still including men exposed to the massive infection which has prevailed on the transports and on troop trains.

In order to prevent the frequently recurring infections introduced through base ports by incoming troops, unusual precautionary measures have been adopted. Men with colds, coughs and fevers are excluded from transports at ports of embarkation, and all troops are equipped with three blankets, an overcoat, and winter-weight woolen underclothing. The number of men carried on transports has been reduced to 80 per cent. of berth capacity, and

EPIDEMIC INFLUENZA AMONG AMERICAN SOLDIERS ABROAD.

DURING the course of the influenza epidemic, the infection has spread to a considerable degree among the troops of the American Expeditionary Forces. The United States Public

hospitalization capacity has been increased to four per cent. of the troops. Ready shelter has been provided for troops arriving at base ports and for a period of four days no heavy duty is required. There is now adequate medical supervision of troop trains. The concerted effort of all medical officers in the application of all measures of local sanitation in order to avoid further extension of influenza with its complicating pneumonias and often coincident meningitis has been required.

Special interest attaches to the statement concerning the mild epidemic of influenza in the American Expeditionary Forces preceding the severe epidemic now in progress. To many who have followed the course of events this will be a reminder of the mild griplike disease which prevailed in a number of cities in this country last winter. Is it possible that there was a direct relation between these outbreaks? It would be interesting to have available accurate information regarding the prevalence of a griplike infection in various parts of the United States last winter and to see what effect, if any, this had apparently exerted on the course of the severe influenza epidemic just passing. It will be noted that in the American Expeditionary Forces, "the heaviest percentage of infected men per strength and the highest percentage of complicating pneumonias" occurred among new replacement draft detachments. Is it possible that the other men possessed a certain degree of immunity because of the earlier mild outbreak?

MASSACHUSETTS MEDICAL SOCIETY: ANNOUNCEMENT.

THE attention of the members of the Massachusetts Medical Society is called to the slip which will be found in this copy of the JOURNAL at the index page. It is hoped that the Fellows of the Society will take advantage of this reminder and pay their dues promptly, without waiting to receive a personal bill. This will greatly aid the work of the district treasurers.

A. K. STONE, *Treasurer*.

MEDICAL NOTES.

INFLUENZA IN SAMOA.—Six thousand deaths due to influenza have occurred in Samoa. The

Australian Government has dispatched a medical staff.

THE WISCONSIN ANTI-TUBERCULOSIS ASSOCIATION.—The program of the annual meeting of the Wisconsin Anti-Tuberculosis Association in Milwaukee, on December 13 and 14, centered about the establishment of free and pay tuberculosis clinics in every suitable Wisconsin county, and was, therefore, of particular interest to physicians.

At the meeting a public health program for the ensuing year was offered, with particular emphasis on tuberculosis. Changed conditions, in particular the uncovering of a large number of cases of incipient tuberculosis among discharged soldiers and draft rejects, have convinced the association that the next link to be forged in the chain of defenses against tuberculosis is the dispensary.

Dr. Michael M. Davis of Boston, one of the foremost authorities on clinics in the country, told of his experience. The meeting was also addressed by Prof. John R. Commons of the University of Wisconsin, and Dr. Donald B. Armstrong, head of the famous Framingham, Massachusetts, experiment, who described a community organized against tuberculosis.

Friday morning and afternoon sessions were held at the Association headquarters, 471 Van Buren street. At the Friday evening dinner at Gimbel's Grill, there were speakers of national reputation. Mr. H. O. Seymour, manager of the Red Cross Christmas Roll Call, acted as toastmaster.

FOR BETTER RURAL HEALTH.—Much remains to be done in rural districts, according to the annual report of the Secretary of Agriculture, to control such pests as mosquitoes and the hookworm, to eliminate the sources of typhoid fever, and, even more, to give the country districts the advantage of modern hospitals, nursing and specialized medical practice.

Noting that many agencies, some of them private enterprises with large funds, are working for improvement, the report says that the Department of Agriculture, through its home demonstration service, is giving valuable aid, and the public health service is increasingly extending its functions.

To what extent the further projection of effort is a matter for State or local action re-

mains to be determined, says the Secretary, but it seems clear that there should be no cessation of activities until there has been completed in every rural community in the Union an effective sanitary service and, through the provision of adequate machinery, steps taken to control and eliminate the sources of disease and to provide the necessary modern medical and dental facilities, easily accessible to the mass of the people.

WINTER HIBERNATION OF ANOPHELES LARVAE.—It has been accepted generally that with the advent of cold weather anopheles become inactive, and upon the freezing over of the water, or even before, they are destroyed. Investigation of conditions in America show that this is not always true. The following observations reported in the Public Health Report for November 15 are of interest in this connection.

1. *Anopheles (crucians* and *punctipennis*, at least) pass the winter in the larval stage. This is true for northern Louisiana (for *crucians*) during a severe winter for that section. Evidence, though less conclusive, shows that *punctipennis*, at least, in the larval stage withstand a severe eastern Virginia winter.

2. Apparently pupation does not occur at low temperature, or until ordinary room temperature obtains.

3. In selected places considerable numbers of anopheles larvae pass the winter as such.

4. Larvacides should be applied in the fall sufficiently late to kill the last batch of larvae, or before season suitable for the completion of their aquatic stages in the spring.

CRAIG COLONY FOR EPILEPTICS.—The Craig Colony for Epileptics, located at Sonvea, New York, was founded in 1894, and has been maintained by State appropriations. As originally designed, it was the plan of the promoters of the Colony to provide housing and maintenance for at least two thousand patients. This is the ultimate capacity toward which the Colony is progressing.

The twenty-fourth annual report describes the condition and activities of the patients. The importance of increasing the facilities for every possible occupation is emphasized, both from the remedial effect which it has upon patients and for the real economic value of their work. Gardening, agriculture, forestry, brick-making, and tile-making have offered a diversity of occupations. Many of the children have been educated

in the lower scholastic branches and in manual work to quite a degree. Patience, tact, and the ability to recognize psychic conditions have been of fundamental importance in working with patients.

During the year, there were several cases of measles, scarlet fever, and diphtheria, causing one death. Forty-two patients left the Colony without permission. Of these, twenty-seven were returned, ten reached home, and four were not accounted for. 1467 patients were admitted during the year. Since the opening of the Colony in 1896, there have been 4,687 patients under treatment, 80 of these have been discharged as recovered, 628 improved, 779 unimproved, and 152 insane. The report contains information about the prognosis and treatment of epilepsy, and includes the case histories of more than 125 patients.

MUNICIPAL COURT OF CHICAGO.—The court offers insight into many conditions of scientific, as well as legal, interest. In the tenth and eleventh annual reports of the Municipal Court of Chicago, the importance of psychopathic investigation is shown by the following ten conclusions, which have been drawn from the material presented in the reports:

I. That delinquency and defectiveness are practically synonymous, the principal forms of defectiveness being dementia precox, psychopathic constitution and feeble-mindedness, alone or in various combinations, psychopathy being the more active instigator, feeble-mindedness the more passive.

II. That defectiveness is also practically at the bottom of most of our dependency, unemployability, alcoholism, asociality, wife desertion, etc.; in fact, is synonymous with sociopathology, and is undoubtedly playing an important rôle in many other mental and physical diseases and accidents.

III. That in the matter of sociopathy, psychopathy (heredity) is an intrinsic factor and environment an accessory factor.

IV. At large, defectives, socially, economically, industrially, in Army and Navy, are a heavy economic and social burden. In appropriate institutions, this burden is to a large degree eliminated.

V. That annually, with statistical punctiliousness, there is a new quota of defectives thrown on the community, that will have to be reckoned with throughout their career.

VI. That these cases run true to form, whether it be in school, business, or socially.

VII. That our laws, penal institutions, and sociological efforts have all handled the problem thus far objectively, completely ignoring the subjective side, the individual himself, with only failure to record. Sociologically, hereafter, just as we have learned in medicine, we will have to "treat the case."

VIII. That new laws and institutions conforming to scientific advance are demanded.

IX. That all courts should have psychopathic laboratories at the service of both sides of a case. Cities should maintain laboratories, where school

children and others may be examined and disposition advised. By recognizing defectives early, they can be committed to colonies and crime anticipated to the advantage of the individual and his family, as well as society.

X. That universities should provide training along these lines in order that we may have enough properly trained and equipped experts to carry on the work and extend research in these fields. Brain laboratories are badly needed adjuncts. Medical and law students and students of sociology should have adequate instruction along these lines.

WAR NOTES.

PREVENTION OF DISEASE FROM RETURNING SOLDIERS.—In an address before the American Public Health Association, Surgeon-General Rupert Blue, of the United States Public Health Service, pointed out the need of special vigilance on the part of health authorities in order to prevent the introduction and spread of dangerous epidemic diseases by our returning soldiers. Furthermore, he urged wider interest and a greater participation on the part of the people in public health work.

"The work of the medical department of the British, French and American armies has shown," said Dr. Blue, "what could be accomplished by well-planned, thorough-going health measures. When the history of the present war is written, not the least significant part will be that which records the achievements in the field of preventive medicine. Anyone familiar with the histories of other wars will realize that hundreds of thousands of lives have been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French and American military forces."

Presenting a program which called for intensive health work carried on by the United States Public Health Service in coöperation with state and local health authorities, Surgeon-General Blue insisted that "what can be done among soldiers in the unfavorable environment of war, can and should be done among the civilian population in the more favorable environment of peace."

Dr. Blue deplored the fact that it was so difficult to interest the general public in matters relating to sanitation and preventive medicine. Well planned health work, he said, constituted really wise economy, for it not only conserved our national strength, but actually reduced expenditures for the treatment and care of illness and death.

The program prepared by the United States Public Health Service suggests that much of the work can best be carried out by a plan which provides for Federal and State participation in local health work whereby each bears a portion of the expense. Special emphasis is laid on matters dealing with industrial hygiene, on improved rural sanitation, the prevention of diseases of infancy and childhood, and on popular health education. In connection with the last named, the Public Health Service contemplates constituting itself a national center and clearing house for information, advice, and educational assistance on all matters relating to public health and hygiene.

ARMY PRECAUTIONS AGAINST THE SPREAD OF DISEASE.—Secretary of War Newton D. Baker has replied to Governor McCall's recent letter urging that proper precaution be taken to prevent the spread of disease in this country as a result of the return of troops from abroad. The dangers particularly feared by Governor McCall were bubonic plague, cholera, typhus fever, and meningitis.

Secretary Baker has given assurance that the troops will be examined very carefully and given appropriate treatment before they are embarked in France, and that, in addition, a considerable number of beds will be available in army hospitals in Boston and at Camp Devens for returned soldiers. The facilities at the disposal of medical authorities will undoubtedly be sufficient to protect the civil community against the dangers of the transmission of infectious diseases from abroad.

When the steamship *Canopic* arrives with returning soldiers the men will be taken immediately to Camp Devens, where they will be quarantined and mustered out of service.

It has been announced that the West Department of the Boston City Hospital, the old Parental school building in West Roxbury, has been equipped as Boston's base hospital. It offers facilities for the care of nearly 400 men. All cases which go to the new base hospital will be distributed from there to specializing hospitals, and all reconstruction cases will be sent to General Hospital 10, the reconstruction hospital on Parker Hill, Roxbury, combining the Robert B. Brigham and the Elks' Hospitals.

Colonel Albert S. Williams has announced that the Commonwealth Armory, which will

be abandoned by the United States Guards on December 12, may also be used as a receiving hospital. No man who is ill will be discharged from the service. He will be retained and treated or receive reconstruction care until he will not need to be a burden to industry and society. Men incapacitated will receive full compensation for disability from the Government. Efforts will be made to send men to hospitals near their homes before they are discharged.

WAR RELIEF FUNDS.—On December 17, the totals of the principal New England war relief funds reached the following amounts:

Belgian Fund	\$721,590.08
French Orphanage Fund	416,201.47
Italian Fund	232,488.83
Lafayette Fund	45,168.41
British Fund	21,139.66

CAPTAIN DOLOFF TRANSFERRED.—Captain Eugene Doloff, who has been in charge of the medical work at Commonwealth Armory, will transfer to the Rufus S. Dawes Hotel on Pine street, on December 12, to be medical officer to the detachment of the 36th Infantry, which will be quartered there.

STUDENTS TO GIVE PLAY FOR SOLDIERS' BENEFIT.—Students of Harvard University and Radcliffe College will present the farce, "Plot and Playwrights," under the auspices of the 101st United States Engineers' Welfare Association, at Jordan Hall on December 17.

NAVY HEALTH CONDITIONS.—The health conditions in the Navy have been excellent and the mortality rate has been low during the war. In his annual report, Admiral Braisted, Surgeon General of the Navy, attributes this largely to the increasing appreciation by commanding officers of the rules of hygiene and sanitation. He believes that where defects in the health system have developed, the country's unpreparedness for operation of such magnitude has been the cause.

Compared with an annual rate of 2.7 per 1,000 for ten preceding years, the rate rose during the first quarter of this year to 8.9 per 1,000 per year. Dr. Braisted has expressed the belief that this was due to the circumstances caused by the rapid expansion of the Navy and the unusual weather conditions of the first quarter of the year. The death rate for the

second quarter was low, 3.3, a figure closely approaching the average for peace times. The hospital admission rate for the calendar year of 1918 will probably be lower than the average in peace times. During the year, 193 men were drowned, 30 died from exposure, and 47 were killed by gunshot wounds.

Dr. Braisted declares that the war has served to clear the reputations of the men of the Army and Navy of the impression in the public mind that diseases, due to social evils, were more prevalent in the service than outside. The Navy Medical Department began an organized fight against these diseases fifteen years ago, and the conscience of the country has been aroused, until a nation-wide campaign is being waged, not only against the evils themselves, but also against the underlying social conditions on which they flourish.

ARMY HEALTH RECORD.—In his annual report, Surgeon General William C. Gorgas stated that the health of the American Army, both at home and overseas, has been excellent, and that the mortality rate from disease is lower probably than that of any similar body of troops in the history of warfare. Complete statistics of deaths in Army camps are not included in the report, which covers only the fiscal year to June 30, 1918. In 1917 total deaths from disease were 2984 and the death rate per thousand 6.3. This compares with a seven-year average of 4.9 per thousand.

Contrasting this report with that of previous years. Gen. Gorgas points out that if the morbidity of typhoid fever had been the same as in 1898 there would have been 1400 deaths from that disease alone, whereas there were only 23.

Measles is placed at the head of the diseases causing deaths, although the report shows that 65 per cent. of the deaths were due to resultant pneumonia.

COMMISSIONED OFFICERS LEAVE CAMP DEVENS.—Ninety-eight commissioned officers from the infantry and medical corps were released from service at Camp Devens on December 6. Major Samuel J. Mixer of Boston was the highest ranking officer to leave the service. On December 10, one hundred additional officers will be discharged and will return to their homes.

BOSTON AND MASSACHUSETTS.

During the week ending December 7, 1918, the number of deaths reported was 254 against 240

last year, with a rate of 16.89 against 16.20 last year. There were 37 deaths under one year of age against 36 last year.

The number of cases of principal reportable diseases were: diphtheria, 50; scarlet fever, 24; measles, 5, whooping cough, 9; tuberculosis, 36.

Included in the above, were the following cases of non-residents: diphtheria, 3; scarlet fever, 1; tuberculosis, 7.

Total deaths from these diseases were: diphtheria, 4; whooping cough, 2; tuberculosis, 20.

Included in the above, were the following non-residents: diphtheria, 1; tuberculosis, 3.

FAULKNER HOSPITAL.—The fourteenth annual report of the Faulkner Hospital, Boston, records an unusual increase in the number of patients cared for. 839 persons were admitted to the hospital and 15,188 days' treatment was given—225 patients more than the previous year and 4,516 more days' treatment given. This is partly due to the opening of the New Maternity Building and to the care which has been extended to men from the radio school in Cambridge, who were received at the rate of 15 men a day for 3 or 4 months.

The maternity building was opened in August, 1917. Since that time, there have been 133 births in the hospital, which is more than twice the number of the preceding year.

X-ray apparatus has been installed. The laboratory work has been increased and the experiment is being tried of having a fourth year student from the Harvard Medical School live at the hospital and take charge of the routine work.

The hospital needs a nurses' home, in order to devote the entire maternity building to patients.

NEW INFLUENZA CASES.—The latest report to the Health Department includes forty-seven new cases of influenza. This figure is higher than for several preceding days, but the cases are comparatively mild. Health Commissioner Woodward has reiterated his plea for the exercise of caution on the part of the public in avoiding those who are infected with the disease. Over 1030 cases have been reported throughout the State during the recurrence of the epidemic. The victory celebration and congestion in elevated trains are regarded as the sources of the new cases.

In Brockton 121 cases have been reported, but

most of **them** are not severe and many are hardly more than colds.

On December 2, 30 new cases of influenza among the civil population were reported to Health Department officials. The deaths have been fewer, with but two of influenza and two of pneumonia, as against five of influenza and three of pneumonia reported the day before. Health Commissioner Woodward has reiterated his belief that the disease is abating.

DELAY IN REPORTING CASES OF INFLUENZA.—State Health Commissioner Eugene R. Kelley, in a recent letter to Gov. McCall on the cause of the recent influenza epidemic, intimates that the disease might have been checked earlier if the first cases discovered at the Commonwealth Pier and in hospitals had been more promptly reported to the health authorities.

The Health Commissioner is reported to have said:

"The bacterial cause of this outbreak is not yet known. A carefully conducted investigation seems to demonstrate that the suspected bacillus *influenzae* of Pfeiffer is not the true cause of the disease and to raise considerable doubt if it is even implicated.

"The means by which it is spread and the conditions which favor its malignancy are not known. Particularly in reference to the latter point we are still in the dark and can only point to the general sanitary rule that overcrowding is to be avoided.

"A vaccine made of killed influenza bacilli has been used with our authorization in the hope that it might prove of value. The records from a large institution where careful observation was possible seem to show that it was of practically no value as a preventive, although certain other observers under less favorable conditions for observation believe it has real value.

"The history of past outbreaks of influenza has proved the incompleteness of our knowledge in regard to the disease. It has repeatedly swept over all barriers that could be raised against its progress and has encircled the globe. What knowledge we have of its cause and channel of travel is clearly inaccurate, for this outbreak has again followed in the footsteps of previous ones and has swept over us.

"This department was first notified of the presence of the disease by an officer of the Navy Department calling attention to its presence on Commonwealth Pier. We have since been in

formed by hospital authorities in Boston that they had been having a number of cases at that time, but that they had not notified us of the fact.

"This epidemic has been a most serious one. It has killed an appalling number of our people and it has directly and indirectly caused the expenditure or loss of large amounts of money and has temporarily halted the progress of many industries."

U. S. MEDICAL CORPS.—At a recent meeting in Ford Hall of the prison committee of the National Civic Federation the conditions prevailing in correctional institutions in this state were discussed. Major A. N. Thompson of the medical corps, U. S. Army, described the work being done by the medical corps in Massachusetts in dealing with a class of diseases which furnish a constant problem for prison authorities.

MORTALITY OF INFLUENZA IN MASSACHUSETTS.—According to the most reliable data obtainable by the State Department of Health there were about 15,000 deaths in Massachusetts as a result of the influenza epidemic. In all there were about 300,000 cases of influenza and pneumonia.

Although the exact figures are not obtainable at present, the estimates are made on the most reliable information at hand. The number of cases will not be known, as influenza was not a reportable disease by the Health Department until October 14. Returns of all deaths in the State are made by cities and towns to the Secretary of State, but it will be several months before those figures are available. It is stated unofficially that at present about 500 cases of influenza are being reported daily to the State Health Department. When the epidemic was at its height, 7000 were reported every day.

At the Wentworth Institute, Boston, no additional influenza cases have been reported recently from the student body. No cases have developed at any other station, fort or school in this vicinity.

In Brockton, 50 new cases of influenza were reported to the Board of Health on December 7, as compared with 78 cases the day before. The epidemic is serious, but the health authorities are not alarmed, as they feel that it will be held in check by the local physicians without outside aid. The nursing problem is causing

some concern. Two trained nurses have been sent to Brockton by the State Board of Health to assist the local nurses.

In Whitman, there were 507 cases of influenza and 27 of pneumonia reported to the Board of Health for the week preceding December 8, when 36 new cases were reported. At a meeting of the Board of Health it was voted advisable to close the schools and forbid public gatherings. Two nurses have been secured to assist the Visiting Nurse Association and attempts are being made to secure additional nurses.

In Boston and vicinity there has been a slight increase in the number of new cases. On December 8, 56 cases of influenza and 1 death were reported, together with 9 new cases of lobar pneumonia and 7 deaths from this cause. On December 9, there were reported 46 new cases of influenza with 6 deaths and 1 new case of lobar pneumonia.

About 125 cases of influenza have been reported to the Randolph Board of Health recently, and while a majority of the cases are mild many cases of pneumonia have developed. The schools may be closed and public gatherings forbidden at any time until the epidemic is under control.

On December 10, 29 new cases of influenza were reported in Waltham.

HARVARD UNIVERSITY MEDICAL SCHOOL.—A meeting for the award of honors to students of medicine was held in the amphitheatre of the Administration Building, Harvard University, on Monday evening, December 16, at 8.15 o'clock.

President Lowell was present and an address was delivered by Dr. Graham Lusk. Dean Edsall presented the diplomas to students of the first rank in the second, third and fourth classes.

Following the meeting an informal reception was given by the Students' Association.

WOMAN PHYSICIANS AT LONG ISLAND HOSPITAL.—For the first time in the history of the Long Island Hospital, a woman has been appointed acting resident physician. Dr. Anna E. Steffen will succeed Dr. L. H. Rockwell. Dr. Rockwell entered the war service some months ago, and has been assigned to Fort Oglethorpe, Georgia. Dr. Steffen has been house officer since January. She is a graduate of Tufts medical school, class of 1913.

Miss Mary A. Morris has been appointed superintendent of nurses at Long Island Hospital.

THE PROBLEM OF FEEBLE-MINDEDNESS.—At the opening of the fiftieth session of the Massachusetts Conference of Charities in Springfield on December 5, the importance of taking measures to prevent the spread of feeble-mindedness was urged by the delegates, who believe that this is one of the most important of the social reconstruction problems.

Among the speakers were Dr. Walter E. Fernald, superintendent of the State School for Feeble-Minded at Waverley; Dr. George M. Kline, chairman of the Commission on Mental Diseases; Miss Amy Woods, general secretary of the League for Preventive Work, and Edward M. Hartman, secretary of the Massachusetts Civic League.

INCREASE IN INFLUENZA CASES.—A Recent report to the Health Department for a period of twenty-four hours includes forty-one new cases of influenza and two of lobar pneumonia. Twelve deaths have been reported. This number shows an increase in the number of cases.

At Wentworth Institute, Boston, twelve cases have developed recently among the members of the Students' Army Training Corps and technical training detachments. The patients have been sent to the Fort Banks Hospital, Winthrop. The fact that the men are demobilizing will make unusual precautions necessary.

On December 5, thirty-five new influenza and six pneumonia cases were reported for a twenty-four hour period. This figure is lower than for the preceding day. Four deaths from influenza and four of pneumonia have occurred in this time. Health Commissioner Woodward has expressed the belief that this fluctuation will continue for several days.

INFLUENZA.—Influenza and pneumonia caused 91,386 deaths in forty-five large American cities between September 14 and November 23. Boston stands fourth in the list with 3,481 deaths due to influenza and 975 to pneumonia.

Massachusetts figures include: Cambridge, 387 influenza and 110 pneumonia; Fall River, 620 influenza and 82 pneumonia; Lowell, 151 influenza and 381 pneumonia; Worcester, 633 influenza and 257 pneumonia.

Eighteen new cases, with but two deaths, of

influenza and pneumonia, were reported to the Health Department on November 29 for the twenty-four preceding hours. These figures are lower than for several days. Several new cases have developed among army men.

In Holliston, Massachusetts, the public schools have been closed because of influenza. There are many cases in Framingham.

Obituaries.

JAMES JACKSON PUTNAM, M.D.

DR. JAMES JACKSON PUTNAM, for nearly fifty years identified with neurology in Boston, his native city, died suddenly November 4, at his home, of angina pectoris.

It is not within the limit of this notice to give in detail the events of his peculiarly energetic life nor anything like a complete list of his accomplishments in the diversified fields of his activities. The outstanding facts may be summarized inadequately as follows: Born in Boston, October 3, 1846, the son of Charles Gideon and Elizabeth Cabot (Jackson) Putnam, he had as his heritage the best traditions of a distinguished ancestry. His paternal grandfather, Samuel Putnam, of the Harvard class of 1787, was for many years Judge of the Supreme Court of Massachusetts. His father was a physician of distinction and his mother was a daughter of Dr. James Jackson, one of the most notable figures of his day in American medicine, an appreciative memoir of whom Dr. Putnam published in 1905.

Dr. Putnam was graduated at Harvard College in the class of 1866 at the early age of 20, already a student of high promise. Following his graduation from the Harvard Medical School he became a house-pupil at the Massachusetts General Hospital and thereafter continued his medical education in Leipzig and Vienna under the instruction of Rokitansky and Meynert. He also visited Paris, and later England, where he came into intimate relations with Huxtings Jackson, for whom he had always the warmest admiration.

With this equipment and with the enthusiasm of a pioneer in a hitherto largely neglected branch of medicine, he forthwith became identified with study of the nervous system, both

in its normal and pathological relations. He was appointed a lecturer on nervous diseases at the Harvard Medical School in 1872, and established the neurological clinic at the Massachusetts General Hospital. In 1893, his long years of teaching and devotion to his chosen subject were rewarded by his appointment as first Professor of Diseases of the Nervous System at the Harvard Medical School. In this capacity he served until 1912, when he was retired by reason of age and made Professor Emeritus.

Dr. Putnam was one of the charter members of the American Neurological Association and was the last survivor for some years of the group of men who founded the society in 1874. He was also a member of the American Academy of Arts and Sciences, of the Association of American Physicians, the American Medical Association, the American Association of Pathologists and Bacteriologists, the American Psychopathological and Psychoanalytical Associations and many State societies, and took frequent part in their meetings and discussions. From its beginning he was a particularly active member of the Boston Society of Psychiatry and Neurology and was one of the leaders in its deliberations. At the last meeting of the Massachusetts Medical Benevolent Society, held a few days before his death, he was made one of its trustees. His eagerness to serve was exemplified in his unwavering interest in social and civic organizations:—the Associated Charities, especially of late, its committee on the alcoholic problem, and the social service movement, to all of which he gave much time and thought.

To estimate at anything like its true significance the life of such a man is, indeed, a difficult task. Possibly our purpose may best be served by an effort to appraise some of his more conspicuous activities.

To be a leader in an untried field demands exceptional qualifications. When he returned from Europe to this country in the early seventies, he had the conviction firmly fixed that the time had come for America to do her part toward developing the practical study of the nervous system. He had few sympathizers and fewer followers, but to a man of his type this was a stimulant rather than a deterrent, and he forthwith started the neurological clinic at the Massachusetts General Hospital, to which was assigned one small room, and began to teach and to investigate. By degrees the clinic grew, an occasional assistant appeared, and a department

which has since attained goodly proportions was permanently established. To a man of less persistence and determination the difficulties would have seemed too great and the road too hard. He lived to see this department of the hospital work, so humbly inaugurated, transferred finally to its present adequate quarters with an increasingly large staff, but his ardent hope that sufficient beds to serve as a complement to the out-patient department be provided has not yet been realized. It would be a fitting and appropriate memorial could such a service be provided. In spite of this serious handicap, the years of his association with the hospital were productive of work and investigation of extraordinary thoroughness and originality. During these earlier years, in lieu of other facilities, he maintained a neuropathological laboratory in his house, the forerunner of the present Department of Neuropathology at the Harvard Medical School. In this laboratory was done much of his pioneer pathological work.

As a teacher of elementary students he was perhaps not so successful as in his other activities. The subject was considered difficult, it was optional, and the average student looked askance at the extra work it entailed. The very profundity of the teacher's knowledge stood in the way of its transmission to the somewhat unwilling student of the earlier days. A certain difficulty in clear exposition of fundamental principles, induced by a conscientious desire to state all the facts of a complex subject rendered his clinical lectures often hard to follow. To the more advanced student this very thoroughness was a decided help and inspiration; as a teacher of those already somewhat conversant with the subject he succeeded in imparting his really extraordinary knowledge more satisfactorily than to the novice.

Dr. Putnam was a master of good English. He wrote extensively and always with painstaking care. His published work of approximately one hundred titles covered a wide range of topics, to all of which he brought originality of thought and expression. Among the most notable of his earlier contributions were an investigation on lead and arsenic poisoning, a study of paresthesia of the hands and a paper on "A Group of Cases of System Sclerosis of the Spinal Cord." The two latter papers, published respectively in 1880 and 1891, were pioneer contributions of great significance which, owing presumably to the somewhat in-

volved wording of their titles and consequent difficulty in indexing, have not received the full recognition which is their due. In 1898, he published papers on internal secretions and splanchnoptosis and again he anticipated our more recent views in an article on the "Psychical Treatment of Neurasthenia." His first interest was mainly with the problems of organic neurology, but during his later years his attention was turned rather toward the functional aspects of nervous disease, an interest which was greatly intensified by the advent of the psychoanalytic movement. The practical application of psychological methods to the problem of behavior in the large sense, as elaborated by Freud and his followers, made an immediate and insistent appeal, and thereafter up to the time of his death he was constantly at work in the attempt to elucidate the deeper significance of the mental life on the basis of the psychoanalytic method. During this period many papers appeared from his pen: his mind was never more active and he bore for the most part with equanimity, but with an occasional burst of indignation the cynical and often abusive criticism aimed not so much at him personally as at the principles in which he believed. It is not to be questioned that when the heat of discussion over the newer psychological theories has subsided his thoughtful and searching papers will come to be regarded as contributions of permanent value in relation to this turbulent phase of medical research. Antedating somewhat this more recent and polemic period his Shattuck lecture before The Massachusetts Medical Society, delivered in 1899, with the original and suggestive title, "Not the Disease Only, but also the Man," revealed in striking fashion his catholicity of view, his belief in the significance of the mental life in the consideration of disease and his conception of the physician's duty toward himself and toward his patient—a masterpiece of expository writing.

His natural mental tendencies led him early toward philosophical inquiry. He was a close personal friend of the late Professors James and Royce and followed eagerly the recent philosophical movement as represented by Bergsen. His constant attempt during the later years was to bring into accord fundamental philosophical conceptions and the practical affairs of life. He believed that the psychoanalytic movement might help toward this end in spite of its incompleteness in that it failed

to correlate the ultimate spiritual demand with the practical details of individual experience, and much of his later writing, as, for example, his book on "Human Motives," was concerned with the endeavor to bridge this gap. Dr. Putnam combined in unusual degree the mental qualities of the man of science and the philosopher. "Physics," he said, "can come to its rights only through metaphysics."

Always keenly alive to the misfortunes of others it was natural that he should have become one of the prime movers in the medical social service movement. From its inception he identified himself with its interests at the Massachusetts General Hospital, served on its committees and through example and in more material ways advanced the cause in which he ardently believed. In this, as in all other good causes, he took his part with a modesty and self-abnegation which was a constant source of marvel to those who knew of his manifold activities. Like his late brother, Dr. Charles P. Putnam, and other members of his family, he was a force for good in the community which was the stronger because exerted in ways which avoided publicity and popular recognition. His mind was always open to new ideas; he was almost childlike in his eagerness to see new light on old problems and to the very end he progressed and expanded. His liberality of thought was altogether admirable. With strong conviction on many subjects, he was peculiarly tolerant of the opinions of others and always willing to absorb and incorporate with enthusiasm into his own theories the conclusions of his fellow workers.

His really extraordinary modesty which in another might have appeared almost an affectation, made him a charming and stimulating companion. His understanding sympathy with human difficulties and weaknesses brought to him many, who were not patients, for advice and admonition. How many he helped over hard places can never be known, but his death, while at the height of his activities, leaves behind the memory of a man indefatigable in good works which knew no abatement even in the physical suffering of his last year.

With his interest in the more serious affairs of life went an unusual capacity for the simpler pleasures. His Adirondack camp, which he shared for years with his friend, the late Dr. Henry P. Bowditch, was a perennial source of interest, where from time to time he entertained

many notable persons. He was accustomed always to spend the month of September in this Adirondaek camp, even after establishing his summer house at Cotuit, on Cape Cod, where he sailed his boat and worked in his garden with unvarying enthusiasm. He found it difficult, however, even in these periods of recreation, wholly to lay aside the problems which were always pressing for solution, as attested by the book or article he carried with him and his tendency always to turn conversation into serious and profitable channels. The war, happily ended a few days after his death, was to him a matter of almost personal sorrow; his attitude toward it was characteristic; it was as if he felt himself in some way personally responsible for the misdeeds of his fellow-men and suffered accordingly.

In many ways Dr. Putnam was in advance of his time. To such men adequate recognition, not always accorded in life, is sure to come in increasing degree as the years lend just perspective to our view. It cannot be doubted that such will be the case with him. He lived through a period of medical and social unrest and did his full share towards the establishment of the new order, combining, as few men have, a wholehearted and impartial devotion to his family, to his friends, to his profession and to the community.

SAMUEL ABBOTT GREEN, M.D.

THE death of Dr. Samuel A. Green at the Hotel Lenox, Boston, on December 5, will be mourned by many. He was born in Groton on March 16, 1830, and was the son of Dr. Joshua Green and Eliza (Lawrence) Green. He prepared for college at Groton Academy and graduated from Harvard University in 1851. Having decided on a medical career, he entered the office of Dr. J. Mason Warren, later attended a course of lectures at Jefferson Medical College, Philadelphia, in 1851 and 1852, and then came back to Boston for study at the Harvard Medical School, from which he was graduated in 1854. Dr. Green then went to Paris to continue his medical study, and in 1854-55 he returned to Boston to practise. It was on May 19, 1858, that he was commissioned surgeon of the Second Massachusetts Militia Regiment by Governor Banks. On the breaking out of the Civil War he entered the service as assistant

surgeon of the First Massachusetts Regiment, and bore the distinction of being the first medical officer of the State to be mustered into the three years' service. He was surgeon of the Twenty-fourth Massachusetts Regiment from September 2, 1861, to November 2, 1864, and had charge of the hospital ship *Recruit* in General Burnside's expedition to North Carolina, and later of the hospital steamer *Cosmopolitan* on the coast of South Carolina. He was chief medical officer at Morris Island during the siege of Fort Wagner in the summer of 1863, and was post surgeon at St. Augustine, Fla., in October, 1863, and at Jacksonville in March, 1864. He was with the army at the capture of Bermuda Hundred in May, 1864, and was acting staff surgeon in Richmond for three months following the surrender of that city in April, 1865.

It was in 1864 that he was breveted lieutenant colonel for "gallant and distinguished services in the field."

Dr. Green organized a cemetery on Roanoke Island, one of the first regular burial places for Union soldiers during the war.

For six years after the war, Dr. Green held the position of superintendent of the Boston Dispensary. He was then appointed city physician, and during eleven years, the performance of these duties endeared him to thousands by his tender devotion to the poor and the unfortunate.

Dr. Green's interest in city affairs led to his election as mayor. He discharged the duties of his position worthily, and though the remainder of his life was devoted to his profession and to literature, he never lost his interest in public affairs.

During his life Dr. Green held many positions of trust and was a member of numerous societies. He served as a member of the School Board in 1860-62 and in 1866-72, as trustee of the Boston Public Library in 1868-78, and as acting librarian in 1877. He was a fellow of the Massachusetts Medical Society, a member of the Boston Society for Medical Observation, of the Boston Society for Medical Improvement, of the American Philosophical Society of Philadelphia, of the State Board of Health, Lunacy and Charity, president of the Channing Home for Consumptives, overseer of Harvard University; trustee, secretary and general agent of the Peabody Education Fund, a member of

the Board of Commissioners to investigate the condition of the records, files, papers and documents in the State Department of Massachusetts, editor of the *American Journal of Numismatics*, and president of the American Numismatic Society. In 1896 the honorary degree of LL.D. was conferred upon him by the University of Nashville, Tenn.

Although his life was filled with innumerable interests and activities, Dr. Green found time to write many books and pamphlets, among which are the following publications:

"My campaign in America," a journal kept by Count William de Deux-Ponts, 1780-81, translated from the French M.S., with an introduction and notes; "The Story of a Famous Book," an account of Dr. Benjamin Franklin's autobiography; "School Histories and Some Errors in Them," "Epitaphs from the Old Burying Ground in Groton," "Early Records of Groton, 1662-1678," "History of Medicine in Massachusetts," "Groton During the Indian Wars," "Groton During the Witchcraft Times," "Boundary Lines of Old Groton," "The Geography of Groton," prepared for the use of the Appalachian Mountain Club; "Groton Historical Series," three volumes: "An Account of the Physicians and Dentists of Groton," also "An Account of the Lawyers of Groton," "The Career of Benjamin Franklin," a paper read before the American Philosophical Society, Philadelphia, May 25, 1893, on the 150th anniversary of its foundation; and "An Address Before the Old Residents' Historical Association of Lowell," also an account of the library of the Massachusetts Historical Society, "An Historical Sketch of Groton, 1655-1890," and a "List of the Early American Imprints" in the library of that society.

The funeral services for Dr. Green were conducted in the Old South Church. Reverend George A. Gordon, D.D., pastor of the Old South Church, conducted the services. Many prominent men and representatives of many of the societies to which Dr. Green belonged during his long career of usefulness attended the services. He was buried in his native town, Groton, where burial services were held in the First Parish Church.

Dr. Green's life was characterized by diversity of endeavor and fulness of achievement. His tastes were simple. For many years he resided on Harrison avenue, where he won the deserved love and confidence of his foreign

neighbors and friends. "No better illustration of the character of the man can be cited than the case of the apple woman who used to have her stand at the old United States Court House at the corner of Temple Place and Tremont street. She had been ordered from her stand at the building, and at whatever place she established herself she could not carry the trade she had had. To Dr. Green she told her story.

To secure her old stand Dr. Green got the endorsement of Assistant United States Treasurer Kennard, United States District Attorney Sanger and the United States Marshal Banks. The petition was forwarded to the Secretary of the Treasury at Washington, with a personal letter from Dr. Green. The woman was allowed to return to her old stand."

An editorial appreciation of Dr. Green in the *Transcript* says:

"Dr. Samuel A. Green was of the most admirable type of the real Bostonian—solid in his attainments, conscientious and public spirited in the performance of every public duty and in the maintenance of the civic interest, polished in education, affectionate in his thought toward his native town and the city of his residence—the 'conscript father' in the old and best sense."

Miscellany.

IN MEMORIAM.

WILLIAM HENRY BUFFUM, A.B., M.D.

Lieutenant, Senior Grade, U.S.N.

Aesculapian Club, Chapter 1902.

WILLIAM HENRY BUFFUM was born in Providence, R. I., June 25, 1877. He attended Brown University, graduating with the class of 1898. He was a member of the class of 1902 in the Harvard Medical School, from which he graduated with honors. He was one of the charter members of the Aesculapian Club in the Chapter of 1902. After a medical house officership at the Massachusetts General Hospital on the service of Drs. Shattuck and Cutler, he returned to Providence to begin the practice of internal medicine. Later he became much interested in obstetrics and still later in pediatrics. He was a member of the State and National societies and at the Rhode Island Hospital he was chief of the new ward for diseases of infants.

He was also associate visiting physician to the Providence Lying-in Hospital. With the formation of Base Hospital No. 5 of the United States Navy, the members of which were in large part from the staff of the Rhode Island Hospital, he volunteered for service, receiving the rank of Lieutenant, Senior Grade.

Soon after the arrival of this unit overseas, Buffum contracted influenza, which was followed by pneumonia. He died in Liverpool on the 13th of October, 1918.

Earnest, quiet, hard-working, unassuming, each of Buffum's many friends will for long years treasure closely the memory of his sterling character and gain high profit from the splendid example set by his all too short life. We mourn the loss of a good and kindly friend; a genial companion; a loyal son of his two Alma Maters; a true disciple of Aesculapius. For such as he there could be only one answer to the call of his country; and those of us who were so fortunate as to see him shortly before his unit sailed for England, know his pride and thankfulness in the fact that he was able to serve.

"Only those are fit to live who do not fear to die; and none are fit to die who have shrunk from the joy of life and the duty of life."

* * * * *

These are the torch bearers, these are they who have dared the Great Adventure."

HARRISON BRIGGS WEBSTER, A.B., M.D.

Major, Medical Corps U. S. Army, A.E.F.

Aesculapian Club, Chapter 1909.

MAJOR HARRISON BRIGGS WEBSTER, M.D., was killed in action in France October 7, 1918. He leaves a wife and three children.

Dr. Webster was born in Boston, January 26, 1884. He graduated from Noble and Greenough School, entering Harvard in the class of 1905. He was prominent in rowing, as well as in all class activities, being a Class Day officer. After graduating from college, he entered the Harvard Medical School, receiving his diploma *cum laude* in 1909. He then became surgical house officer at the Massachusetts General Hospital. After finishing his internship, he went to assist Dr. Grenfell, in Labrador. Returning in two years, he settled in Castine, Me., where he practised until war was declared.

One of the first to enlist, he started at the

bottom and rapidly rose in rank, as his sterling qualities were recognized, until at the time of his death, he was Major, acting as regimental surgeon of the 47th infantry. Judging from his letters, he was in the thick of the fighting in several engagements, and all who knew him, knew that he was taking no heed for his own safety when help was needed.

"Buntie" was a lovable and jovial companion at all times. In all his work he combined unusual surgical skill and fine judgment.

According to the meagre accounts obtainable, he was killed by a shell while helping extricate an ambulance loaded with wounded, which was caught in a mud hole. He died doing heroic work for others, as he would have wished to die. Those of us who knew "Buntie" will mourn a true friend and a brave comrade.

Correspondence.

CARLYLE'S DESCRIPTION OF INFLUENZA IN 1837.

31 Massachusetts Ave., Boston, Mass.
December 8, 1918.

Mr. Editor:—

The following description of the influenza epidemic in London is from a letter written by Carlyle to his younger sister, Mrs. Haunting, who lived in Manchester.

The letter was written in January, 1837.

"All people have got a thing they call Influenza, a dirty, feverish kind of cold; very miserable, and so general as was hardly ever seen. Printing offices, Manufactories, Tailor shops, and such like are struck silent, every second man lying *sniffling* in his respective place of abode. The same seems to be the rule in the North, too.

"I suppose the miserable temperate of climate may be the cause. Worse weather never fell from the Lift, to my judgment, than we have here. Reek, mist, cold, wet; the day before yesterday there was one of our completest London fogs,—a thing of which I suppose, you even at Manchester can form no kind of notion."

Very truly yours,
WM. PEARCE COUES, M.D.

SOCIETY NOTICE.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held in the Roxbury Masonic Temple, 171 Warren St., December 31, at 8.00 p.m.

Communications: The Conservation of Industrial Man-Power Through the Standardized Methods of the Life Extension Institute, Martin Edwards, M.D.; The Care of the Workers of the Thomas G. Plant Company, Marion H. Lewis, M.D.; Value of an Industrial First Aid Department, Matthew Porofsky; What Industrial Work Means to Me, Louise Monroe; A Few Words Regarding the Emergency Work of the Industrial Plants of Ward Twenty-four, Charles F. Stack, M.D.

BRADFORD KENT, M.D., *Secretary*.

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